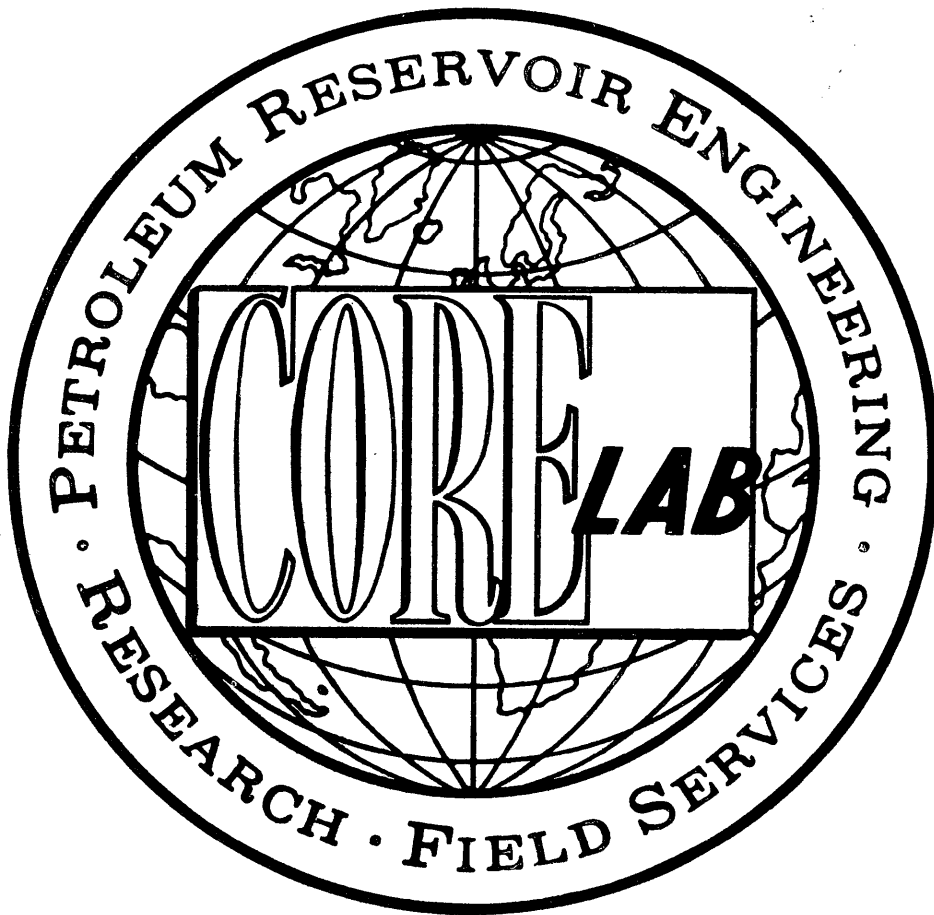


ATTACHMENT TO WCR  
MUDLOGGING REPORT  
WIRRAH - 2  
(W797)



W 797

IES WELL REPORT  
ESSO AUSTRALIA LTD.

- 7 JUN 1983

WIRRAH NO. 2

**OIL and GAS DIVISION**

CORE LABORATORIES AUSTRALIA (QLD.) LTD.



31st March 1983

Esso Australia Ltd  
Esso House  
127 Kent Street  
Sydney  
N.S.W. 2001

ATTENTION: MR. K. KUTTAN

Dear Mr. Kuttan,

Please find enclosed five (5) copies plus the original well report  
for WIRRAH NO. 2.

If you have any enquiries concerning this well, please do not  
hesitate to contact us.

Yours very truly,  
CORE LABORATORIES AUSTRALIA (QLD.) LTD.

*T. Charles*

*for*  
M. Mowatt  
Unit Supervisor

MM:ARC:pc

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1. INTRODUCTION

WIRRAH NO. 2 was drilled by ESSO AUSTRALIA LTD. in the Bass Strait, Australia.

Well co-ordinates were:

Latitude : 38° 11' 0.46" S

Longitude : 147° 49' 26.18" E

The well was drilled by South Seas Drilling Company's semi-submersible rig 'SOUTHERN CROSS', and monitored by Core Laboratories Intermediate Extended Service Field Laboratory 802.

WIRRAH NO. 2 was spudded on 22nd January 1983 and reached a total depth of 3085 metres on 23rd February 1983, a total drilling time of 33 days. The main objective of the well was primarily to assess the hydrocarbon shows encountered in WIRRAH NO. 1, and also to determine the extent and significance of hydrocarbon shows and stratigraphic enclosure below 2700 metres in WIRRAH NO. 1.

Elevations were:

Kelly bushings to mean sea level ..... 21m

Water depth ..... 50m

Kelly bushings to mean sea bed ..... 71m

All depths used in this report and accompanying logs refer to depth below rotary kelly bushings (RKB).

Core Laboratories personnel involved in the logging of WIRRAH NO. 2 were:

|                   |   |                    |
|-------------------|---|--------------------|
| MIKE MOWATT       | - | Unit Supervisor    |
| GAVIN MUNN        | - | Pressure Engineer  |
| TONY CHARLES      | - | Pressure Engineer  |
| BOB GIFTSON       | - | Logging Crew Chief |
| TEOFILO RODRIGUES | - | Well Logger        |
| BRYAN PAULET      | - | Well Logger        |
| PAUL DENTON       | - | Well Logger        |
| ALAN BOCK         | - | Sample Catcher     |
| TROY GROTH        | - | Sample Catcher     |
| GARY KILLEN       | - | Sample Catcher     |
| TONY GREEN        | - | Sample Catcher     |

## 2. CORE LABORATORIES EQUIPMENT

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Core Laboratories Field Laboratory 802 monitoring equipment includes the following :

### A. MUD LOGGING

---

1. T.H.M. total gas detector and recorder
2. Hot wire total gas detector and recorder
3. F.I.D. (Flame Ionization Detector) chromatograph and recorder
4. Gas trap and support equipment for the above
5. Rate of Penetration recorder and digital display
6. Pit volume totalizer, display and recorder
7. Digital depth counter
7. Two integrated pump stroke counters, with digital display
9. Ultra-violet fluoroscope
10. Binocular microscope

### B. INTERMEDIATE EXTENDED SERVICE PACKAGE

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1. Hewlett Packard 9825T desktop computer and 3497A data acquisition unit
2. Hewlett Packard 9872B plotter
3. Hewlett Packard 2631A printer
4. Two Hewlett Packard 2621P visual display units, (one located in the client's office)
5. Hookload/weight on bit transducer and recorder
6. Rotary speed tachogenerator and recorder
7. Standpipe pump pressure transducer and recorder
8. Mud flow out sensor and recorder
9. Mud temperature sensors and recorder (in and out)
10. Mud conductivity sensors and recorder (in and out)
11. Rotary torque sensor and recorder
12. Shale density apparatus
13. Hydrogen sulphide gas detector
14. Carbon dioxide gas detector

### 3. CORE LABORATORIES MONITORING EQUIPMENT

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#### DEPTH

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Depth registered every 0.2 metres and rate of penetration calculated each metre ( or every 0.2 m while coring ). ROP displayed on digital panel and chart.

#### WEIGHT ON BIT

---

A Tyco 0-1000 psi, solid state pressure transducer is connected to the rig's deadline anchor. The weight on bit is calculated in the Rig Functions panel, and displayed (with hookload) on a digital meter and recorder chart

#### ROTARY SPEED

---

This is a DC generator for which 1 volt = 100 rpm, and which is belt-driven from the rotary drive shaft. The value is displayed on digital meter and recorder chart.

#### PUMP PRESSURE

---

This is a Tyco 0-5000 psi transducer mounted on the standpipe manifold. The pressure is displayed on digital panel meter and recorder chart.

#### PIT VOLUME

---

Six individual pits can be displayed on the meter. The pit volume total is calculated in the PVT panel and displayed on a digital meter. The sensors are vertical floats driving potentiometers accurate to +/- 1 barrel. Each sensor is equipped with a wave compensating device. In addition a sensor is fitted to the rig's trip tank, so that hole fill-up during trips may be closely monitored. A recorder chart displays the levels of the active pits, the pit volume total, and the trip tank.

#### PUMP STROKES

---

These are the limit switch type, counting individual strokes. The Pulse Data Box can monitor one or two pumps individually or integrate the total number of strokes from both pumps. The pump rate per minute is displayed on recorder chart.

## ROTARY TORQUE

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An American aerospace Controls bi-directional current sensor is clamped over the power cable of the rotary table motor. Torque is displayed on digital panel meter and recorder chart.

## MUD TEMPERATURE

---

This is a platinum probe resistance thermometer, calibrated 0-100 deg.C. Temperature in and out is displayed on recorder chart and digital meter.

## MUD CONDUCTIVITY

---

A Balsbaugh electrode-less conductivity sensor measures the current in a closed loop of solution coupling a pair of toroidal transformer coils. The conductivity in and out is displayed on analog and digital meters, and recorder chart.

All the sensors are 5 to 24 v DC powered with the exception of the air driven gas trap. Along with monitoring and maintaining the above equipment, Core Lab furnished and operated certain other items.

## CUTTINGS

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Microscopic and ultra-violet inspection of cuttings samples at predetermined intervals. Dry samples were washed, dried and boxed. Wet samples were washed sacked and boxed. Geochemical samples were canned and boxed.

## GAS

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1. Flame Ionization Total Hydrocarbon gas detector.  
The T.H.M. accurately determines hydrocarbon concentrations up to 100% saturation.
2. Flame Ionization Detector chromatograph.  
The F.I.D. is capable of accurate determination of hydrocarbon concentration from C1 to C6+.
3. Hot wire gas detector (Wheatstone Bridge type)  
A back up system for total gas detection.

## SHALE DENSITY

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Manual determination of shale density in an accurately calibrated variable density column.

#### 4. INTERMEDIATE EXTENDED SERVICE INTRODUCTION

The Core Laboratories Intermediate Extended Service Package includes sensors, recorders and computer facilities useful in the drilling operation; for the detection of abnormal formation pressure; and the optimization of drilling.

Presented graphically on Core Laboratories I.E.S. logs (discussed individually in the following section of this report) are the various functions necessary for well control, abnormal formation pressure detection and drilling optimization.

Other available services include electric log interpretation programs for the wellsite geologist, hydraulics (synthesis and analysis), well kill, cost per foot, bit nozzle selection, swab and surge created by pipe movement and bit performance programmes for the wellsite drilling engineer.

Core Laboratories I.E.S. logs include the following :

##### I.E.S. PRESSURE LOG

Information plotted on this log includes formation pore pressure, mud weight in and formation fracture pressure. This is plotted on linear graph paper at a vertical scale of 1:5000. The formation pore pressure and fracture pressure gradients are based on all available information. This is a conclusion log, therefore the information may be modified by results from formation drill stem tests, data from adjacent wells, kicks, and formation breakdown tests.

##### CORELAB DRILL DATA PLOT

This plot, which is drawn while drilling is in progress, is the primary tool by which formation overpressure is detected. Drawn on a 1:5000 scale it is particularly useful in that five plots are drawn side by side, and thus any trend can be readily recognised.

The main plot is that of the corrected 'd' exponent, which is presented on a logarithmic scale. The 'd' exponent was first developed by Jordan and Shirley in 1966 to assist in interpreting rate of penetration data by normalizing for rotary speed and weight on bit per inch of bit diameter.

The modified 'dc' exponent was proposed by Rhem and McClendon to compensate for increases in mud weight. This involves multiplying the standard 'd' exponent value by the inverse ratio of the mud weight. A multiple of 9 ppg was used for convenience to return the magnitude of the 'dc' to a comparable value of its uncorrected state. In this case, a multiplier of 10 ppg was used. The equation for 'dc' is therefore :

$$\text{"dc"} = \frac{\text{Log} \left( \frac{\text{ROP}}{\text{RPM} \times 60} \right) \times 10}{\text{Log} \left( \frac{\text{WOB} \times 12}{\text{Bit diam} \times 1000} \right) \text{MDI}}$$

Deviations from the normal "dcs" trend may be interpreted as being due to a change in formation pore pressure. An equation derived by Eaton is used in an attempt to evaluate pore pressure from deviations in the "dcs" plot. This method of overpressure detection can be fairly accurate for homogeneous shales, but where the sand/silt/shale ratio varies a great deal, inaccuracies often occur.

The other main plots are a logarithmic rate of penetration, which complements the 'dcs' plot and a linear plot of total mud gas.

Shale densities are also plotted on a linear scale in order to show up a decreasing density trend, and hence a possible transition into abnormally pressured shales. The points are determined by measuring the density of air dried shale samples in an accurately calibrated density solution.

An interpreted lithology column is also included on the log, as is a plot of mud density in, to assist in interpretation. All relevant information, such as casing points, bit runs, etc. are also included.

#### I.E.S. GEO-PLOT LOG

This is plotted by the computer while drilling is in progress. At a later date this plot can be re-run on different scales to suit the client. The data is stored on magnetic tape during the drilling operations. Functions plotted on this log are : rate of penetration, corrected "d" exponent, breakeven analysis, formation pore pressure, mud density in and formation fracture pressure.

Two Geo-plots are included in this report, at scales of 1:2000 and 1:5000.

#### I.E.S. FLOWLINE TEMPERATURE, FLOWLINE TEMPERATURE END TO END PLOTS

Flowline temperature and end to end plot of flowline temperature are the two main plots relating to the temperature of the returning drilling fluid. These are plotted on a vertical scale of 1:5000. The use of these plots as an indicator of the presence of over-pressure takes secondary role to the I.E.S. drill log. Continuous observation of flowline temperature may indicate an increase in geothermal gradient. Factors affecting temperature are noted on the log, such as new bit runs, changes in the circulation rates, circulating cuttings out and the addition of water and chemicals to the active mud system. Since the goal of the end-to-end plot is to provide a representation of the geothermal gradient, all surface changes which would cause artificial changes in the flowline temperature are disregarded.

#### ELECTRIC LOG PLOT

A plot of shale resistivity (ohm-metres squared/metre), sonic travel time (microseconds per foot), bulk density (gm./cc) and neutron porosity (%), is made, using data supplied by Schlumberger. Two-cycle semilog paper is used, with a vertical scale of 1:10,000. As far as possible only clean shale points are selected and plotted. The relatively compressed vertical scale makes deviations from the normal compaction trend easier to identify.

## PROGRESS LOG

This is the traditional presentation of footage against elapsed time in days. It shows actual drilling time from spud to total depth.

## DATA RECORDING

Data is recorded on tape while drilling both as raw input numbers and computer calculated numbers. This data can be accessed later for use in interpretative programs or to review data. Comprehensive data lists are included in this report.

## MUD DATA SHEETS

These are a record of the mud properties while drilling and are derived from the mud engineer's daily report.

## DRILLING PARAMETER PLOT

The drilling parameter plot shows : rate of penetration, weight on bit, rotary speed, pump pressure, hydraulic horsepower, impact force and jet velocity. This plot is drawn by the computer and is designed to aid the drilling engineer in drilling optimization. The scale chosen here is 1:5000.

## HYDRAULIC ANALYSES

During drilling, routine hydraulic analyses are calculated by the computer, and these are made available to the drilling engineer. This report includes a sample hydraulics for each 100 m.

## GAS COMPOSITION ANALYSIS

For each significant gas show, the chromatograph results are analysed using two techniques:-

1. Log plot
2. Triangulation plot

Both plots are included in this report.

## GRAPHOLOG

This is plotted on the industry standard form on a vertical scale of 1:500. Rate of penetration is plotted in metres per hour, together with mud gas chromatography results. Total gas is also plotted, and a percentage lithology log is drawn. A lithology description is presented in an abbreviated form. All relevant drilling data is included, as is bit and mud data.

## MISCELLANEOUS

Various data collected from this well are also included in this report for reference. These include formation leak off test data, and R.F.T. and well test data where appropriate.



5. RIG INFORMATION SHEET



## RIG INFORMATION SHEET

COMPANY ESSU AUSTRALIA LTD.WELL WIRRAH NO. 2

|  |  |
|--|--|
| OWNER  | SOUTH SEAS DRILLING COMPANY  |
| NAME AND NUMBER  | SOUTHERN CROSS ( N <sup>o</sup> 107 )  |
| TYPE   | SEMI-SUBMERSIBLE , TWIN HULLED.  |
| DERRICK, DRILL FLOOR & SUBSTRUCTURE  | DERRICK: LEE C MOORE, 152' HIGH X 40' AT BASE.<br>LOAD CAPACITY OF 1 000 000 lbs   |
| DRAWWORKS  | OILWELL E-2000 DRIVEN BY 2 GE 752 ELECTRIC MOTORS.   |
| CROWN BLOCK  | LEE C MOORE 27458 C. CAPACITY 500 SHORT TONS.  |
| TRAVELING BLOCK  | OILWELL A 500  |
| SWIVEL   | OILWELL PC 425   |
| ELEVATORS  | BYRON JACKSON MODEL 66 CAPACITY .350 TON   |
| KELLY & KELLY SPINNER  | DRILLCO 5 $\frac{1}{2}$ " x 50' HEX KELLY  |
| ROTARY TABLE   | OILWELL A 37 $\frac{1}{2}$ SINGLE ELECTRIC MOTOR   |
| ROTARY SLIPS   | VARCO DCS-L  |
| MUD PUMPS  | TWO OILWELL A 1700PT. RATED AT 1600HP  |
| MUD SYSTEM   | FOUR MUD TANKS HAVING A TOTAL CAPACITY OF 1200 BBL, AND ONE PILL TANK HAVING A CAPACITY OF 105 BBL.<br>TWO MUD HOPPERS POWERED BY 2 MISSION 6x8" CENTRIFUGAL BY TWO 100 HP ELECTRIC MOTORS.<br>DESANDER : 1 DEMCO 4 CONE 12" MODEL N <sup>o</sup> 124<br>DESILTER : 1 DEMCO 4"-16H 16 CONE<br>DEGASSER : 1 SWACO MODEL N <sup>o</sup> 36<br>SHALE SHAKERS : 2 BRANDT DUAL UNIT TANDEM - GHI DUAL UNIT. |
| BLOW OUT PREVENTORS  | THREE SHAFFER L.W.S. 18 $\frac{3}{4}$ " - 10 000 psi<br>TWO HYDRIL G.L. 18 $\frac{3}{4}$ " - 5000 psi  |
| WELL CONTROL EQUIP.  | FOUR VALVCON ACCUMULATORS. 2" - 10 000psi<br>CHOKES: 2 C.I.W. ABJ H2 2 1/16" - 10 000 psi, 1 SWACO SUPER CHOKE   |
| TUBULAR DRILLING EQUIPMENT   | OC : 6 $\frac{1}{4}$ " x 2 13/16" (4" IF TJ)<br>8 " x 2 13/16" (6 5/8" H90 TJ)<br>9 $\frac{3}{4}$ " x 3" (7 5/8" H90 YJ)<br>HWDP : 5" 50lb/ft GRADE G (6 $\frac{1}{2}$ " OD 4 $\frac{1}{2}$ " IF TJ)<br>DP : 5" 19 $\frac{1}{2}$ lb/ft GRADE G&E (6 3/8" OD 4 $\frac{1}{2}$ " IF TJ)   |
| CEMENTING UNIT   | HALLIBURTON HT-400 UNIT  |
| MONITORING EQUIPMENT   | MARTIN DECKER : MUD VOLUME TOTALIZER<br>6 CHANNEL DRILLING RECORDER<br>4 PRESSURE GAUGES<br>FLOWSHOW INDICATOR   |
| POWER SUPPLY   | 2 EMD MD 18 DIESEL ENGINES RATED AT 1950 HP EACH<br>1 EMD MD 12 DIESEL ENGINE RATED AT 1500 HP   |
| DIRECTIONAL EQUIP.   | -  |
| MISCELLANEOUS (E.G. RISER, COMPENSATION SYSTEM, PIPE RACKER, DP EQUIPMENT)<br>RISER: REGAN FC-7 TELESCOPIC 21" ID. PLUS FLOW DIVERTOR.<br>CASING POWER TONGS: ECKEL 13 3/8" (20 000 ft lbs), 20" (35 000 ft lbs)<br>CMT BULK TANKS: 3x1570cu ft. RISER TENSIONER: 6 WESTERN GEAR, 50'SROKE, 80 000lbs.<br>MUD BULK TANKS: 3x1570cu ft. GUIDE LINE TENSIONERS : 4 WESTERN GEAR 16 000 lbs, 40'SROKE |  |

6. WELL INFORMATION SHEET

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WELL INFORMATION SHEET

COMPANY ESSO AUSTRALIA LTD.  
 WELL WIRRAH NO. 2

Sheet No. 1

|                       |                     |                             |             |             |                                       |                     |                   |          |        |        |        |
|-----------------------|---------------------|-----------------------------|-------------|-------------|---------------------------------------|---------------------|-------------------|----------|--------|--------|--------|
| WELL NAME             | WIRRAH NO. 2        |                             |             |             |                                       |                     |                   |          |        |        |        |
| OPERATOR              | ESSO AUSTRALIA LTD. |                             |             |             |                                       |                     |                   |          |        |        |        |
| PARTNERS              | B.H.P.              |                             |             |             |                                       |                     |                   |          |        |        |        |
| RIG                   | OWNER               | SOUTH SEAS DRILLING COMPANY |             |             |                                       |                     |                   |          |        |        |        |
|                       | NAME OR NUMBER      | SOUTHERN CROSS              |             |             |                                       |                     |                   |          |        |        |        |
|                       | TYPE                | SEMI-SUBMERSIBLE            |             |             |                                       |                     |                   |          |        |        |        |
| LOCATION              | LATITUDE (X)        | 38° 11' 0.46" S             |             |             |                                       | LONGITUDE (Y)       | 147° 49' 26.18" E |          |        |        |        |
|                       | FIELD               | GIPPSLAND BASIN             |             |             |                                       | AREA                | BASS STRAIT       |          |        |        |        |
|                       | COUNTY              | AUSTRALIA                   |             |             |                                       | STATE               | VICTORIA          |          |        |        |        |
|                       | COUNTRY             | AUSTRALIA                   |             |             |                                       |                     |                   |          |        |        |        |
|                       | DESCRIPTION         | EXPLORATION                 |             |             |                                       |                     |                   |          |        |        |        |
| DATUM POINTS          | Ground Elevation    | -                           |             |             |                                       | RKB to Ground Level | -                 |          |        |        |        |
|                       | Mean Water Depth    | 50M                         |             |             |                                       | RKB to Water Level  | 21M               |          |        |        |        |
| DATES                 | SPUD                | 22 JANUARY 1983             |             |             |                                       | TOTAL DEPTH         | 3085M             |          |        |        |        |
| HOLE SIZES            | Depth From          | Depth To                    | Bit Size "  | No. of Bits | No. of Reamers                        | Date From           | Date To           | Cased "  | Logged |        |        |
|                       | 71                  | 208                         | 26          | 1           | 0                                     | 22/1/83             | 22/1/83           | 20       | N      |        |        |
|                       | 208                 | 825                         | 17.5        | 1           | 0                                     | 24/1/83             | 25/1/83           | 13-3/8   | Y      |        |        |
|                       | 825                 | 3085                        | 12.25       | 13          | 0                                     | 27/1/83             | 23/2/83           | NO       | Y      |        |        |
| DRILLING FLUID        | Depth From          | Depth To                    | Weights     |             | Type                                  |                     |                   |          |        |        |        |
|                       | 71                  | 208                         | 8.6 TO 8.6  |             | SEAWATER                              |                     |                   |          |        |        |        |
|                       | 208                 | 825                         | 8.6 TO 8.9  |             | SEAWATER AND SEAWATER PREHYDRATED GEL |                     |                   |          |        |        |        |
|                       | 825                 | 3084                        | 8.9 TO 10.5 |             | SEAWATER GEL                          |                     |                   |          |        |        |        |
|                       |                     |                             | TO          |             |                                       |                     |                   |          |        |        |        |
|                       |                     |                             | TO          |             |                                       |                     |                   |          |        |        |        |
| WIRELINE LOGGING      | Depth From          | Depth To                    | Hole Size   | Date Run    | Logs Run                              |                     |                   |          |        |        |        |
|                       | 825                 | 193                         | 17½         | 25/1/83     | BHC-CAL-GR                            |                     |                   |          |        |        |        |
|                       | 2445                | 808                         | 12½         | 9/2/83      | DLL-MSFL-GR                           |                     |                   |          |        |        |        |
|                       | 2445                | 808                         | 12½         | 10/2/83     | LDT-CNL-GR (LDL-CNLG-GR)              |                     |                   |          |        |        |        |
|                       | -                   | -                           | 12½         | 10/2/83     | RFT'S 1, 2                            |                     |                   |          |        |        |        |
|                       | 3084                | 2390                        | 12½         | 25/2/83     | DLL-MSFL-GR                           |                     |                   |          |        |        |        |
|                       | 3085                | 2400                        | 12½         | 25/2/83     | LDL-CNLG-GR                           |                     |                   |          |        |        |        |
|                       | 3085                | 808                         | 12½         | 25/2/83     | BHC-GR                                |                     |                   |          |        |        |        |
| RISER, CASING & LINER | Depth From          | Depth To                    | OD          | ID          | Weight                                | Grade               | Threads           | Date Run | Cement | Stages | Excess |
|                       | 0                   | 71                          | 22          | 21          |                                       |                     | RISER             |          |        |        |        |
|                       | 71                  | 193.5                       | 20          | 19.124      | 94.4                                  | X52                 | JV BOX            | 23/1/83  | "N"    | 1      | -      |
|                       | 71                  | 808                         | 13-3/8      | 12.615      | 54.5                                  | K55                 | BUTT              | 26/1/83  | "N"    | 1      | -      |



7. WELL HISTORY

## 7. WELL HISTORY

21st January 1983. Moved to new location. Ran the anchors.

22nd January 1983. Completed running the anchors. Spudded WIRRAH NO. 2 at 0950 hours. Drilled 26" hole down to 208m. Pulled out to the sea bed. R.I.H. to bottom, then P.O.O.H. to run the 20" casing. Ran the 20" casing.

23rd January 1983. Cemented the 20" casing shoe at 193.5m. Ran the stack and riser.

24th January 1983. Nipped up. Drilled through the cement, 20" casing shoe, and then into new formation with bit no. 2 (HTC OSC 3AJ, 17½", 3 x 18). The midnight depth was 713m, and gas for the drilled interval remained low at not more than 0.2 units.

25th January 1983. Drilled 17½" hole to 805m. Made a 19-stand wiper trip. Tight hole was experienced for the first 5 stands. After running to bottom it was decided to drill ahead still further to find a suitable seat for the 13-3/8" casing shoe since a few beds of thin sandstones were located between 780 and 805 metres. Schlumberger ran one log (BHC-CAL-GR). Made another wiper trip, circulating bottoms-up twice and working the pipe (maximum gas was 2 units).

26th January 1983. Ran the 13-3/8" casing and set the shoe at 808m. Tested the stack. R.I.H. with bit no. 3 (HTC X3A, 12¼").

27th January 1983. Drilled through the cement plug, cement and shoe. Drilled 6m of new hole, then conducted a P.I.T. The formation held 1200 psi with 9.0 ppg mud, and did not leak-off, indicating that the fracture gradient was greater than 17.5 ppg E.M.W. at 831m. Drilled 12¼" hole to 1132m. (Gas levels were low, being between 0-1 units).

28th January 1983. Drilled 12¼" hole to 1271m. The bit began skidding due to two locked cones, so it was pulled (the condition was 6-8-1/16). Ran another X3A in the hole (no trip gas). Drilled ahead to 1499m. The ROP's were fast at times (40-70m/hr between 1271 and 1386 metres. Gas values steadily increased as the Lakes Entrance Formation was penetrated. Background gas rose from atrace up to 5-6 units, with the maximum being 11 units (from 1440m).

29th January 1983. Drilled 12¼" hole from 1499-1528m. The rate of penetration suddenly increased from 1511 to 1527m, with a corresponding increase in gas levels. Bottoms were circulated up, and 650 units were

detected, coming from 1527m. Overpressure was indicated, with the pore pressure being close to the mud weight (9.4 ppg). The mud was weighted to 9.6 ppg all the way round, and drilling resumed. At 1542m, the hole was circulated clean (and the riser was flushed) due to Gumbo problems and the formation of a mud ring in the riser. Then proceeded with controlled drilling (background gas was 20 units), until the problem formation had been passed. Drilled to 1624m - no further pressure anomalies were encountered. Due to excessive torque the bit was pulled at this depth. (Condition 8-8-1½"). R.I.H. with the new bit (J22) and reamed to bottom. (Since the previous bit was pulled 1½" out of gauge.)

30th January 1983. Trip gas from 1624m was 1-14-2 units. The new bit was worn in slowly, but failed to make adequate hole beyond 1626m due to high torque, so the bit was pulled. At the surface, the bit was found to have been pinched - hence the cones were locked (bit condition was reported as 8-2-1/8). R.I.H. with another new bit (J7), reamed to bottom were necessary, and drilled 12¼" hole to 1663m. Possible junk in the hole was causing excessive torque once again, thereby reducing penetration rates to almost zero. For this reason, the bit was pulled (graded at 5-2-3/8"). Maximum gas detected today was 14 units over a background of 1-3 units.

31st January 1983. R.I.H. with the new bit (J22). Reamed the last three singles to bottom. Drilled 12¼" hole to 1864m, pulling off bottom periodically due to torque buildup (as a result of junk in the hole). Coals yielded the highest gas peaks (maximum was 65 units from 1689 metres) and the background gas was 1-3 units. Trip gas from 1663m was 1-4-2 units, and there was no connection gas detected.

1st February 1983. Drilled 12¼" hole to 1914m. Pulled off bottom occasionally due to high torque. Made a 10-stand wiper trip. (Wiper Trip Gas was 3-6-3 units). Drilled ahead to 1992m. The maximum gas was 118 units (from Coal at 1890m), and the background gas was 1-2 units.

2nd February 1983. Drilled ahead to 2058m where the bit was pulled due to decreased ROP's. Gas remained at background levels of 1-2 units, with one peak of 17 units associated with a coal. Tested the stack, and choke manifold. R.I.H. with bit no. 8 (J22, 12¼"), reamed the last three singles to bottom and drilled to 2065m. Trip gas from 2058m was 1-14-2 units.

3rd February 1983. Drilled 12¼" hole to 2168m. Circulated bottoms-up for the geologist after a drill break from 2167 to 2168 metres. Bottoms-



up gas from 2168m was 2.4 units (no show). Drilled ahead to 2209m where another prospective core-point was circulated to surface (3.6 units from 40% sandstone and 60% siltstone). As there was no show at this depth, drilling continued down to 2213m. Today's maximum gas was 20 units (from coal at 2141m) and the background gas rose to 3-4 units, probably as a result of reducing the mud weight from 9.5 ppg to 9.2 ppg.

4th February 1983. Drilled to 2253m, circulating bottoms-up for the geologist at:

2225m (4 units gas, 60% SST, 40% SLTST)

2238m (3.5 units gas, 90% SST, 10% SLTST)

2253m (4.7 units gas, 80% SST, 20% SLTST)

At 2253m, it was decided to cut a core, so the bit was pulled, and a core barrel was run in the hole. Cut core No. 1 from 2253-2265.1m.

5th February 1983. P.O.O.H. to catch core No. 1. Recovered 11.4m of Sandstone, Siltstone and Claystone (12.1m cut, 94% recovery). R.I.H. with a new bit (No. 9, HTC J22, 12 $\frac{1}{4}$ " ). Reamed the core rathole and drilled to 2299m. Trip gas was 2-10-3 units and maximum drilled gas was 7 units from a drill break at 2292-2299m where the drill rate increased from 3-6m/hr to 8-12m/hr.

6th February 1983. Drilled ahead at 3-6m/hr with drill breaks at 2301-2305m (7-15m/hr); 2310-2312m (7-16m/hr); 2365-2369m (7-17m/hr); 2377-2382m (7-10m/hr). There was only a small increase in gas levels associated with these sands, the higher gas peaks of 27 units from 2385m and 13 units from 2409m were from coals.

7th February 1983. Drilled ahead from 2408m with ROP's of 2-5m/hr. A drill break at 2422-2428m (8-17m/hr) yielded only 4 units of gas, the background gas levels running at 1-2 units. Maximum gas was 15 units from 2444m (coal). The bit was pulled at 2450m, having drilled 185m in 39 hours and made 125,000 turns, for wireline logs and RFT's. A wiper trip was made to the casing shoe and circulation commenced to clean the hole. Trip gas was 23 units. Whilst P.O.O.H. for the wiper trip tight spots were encountered between the 11th and 20th stands with overpull up to 50,000 lbs necessary. On P.O.O.H. after the wiper trip the hole was tight between the 32nd and 35th stands (1560-1470m) with overpull of 160,000 lbs.

8th February 1983. Schlumberger failed to get deeper than 1450m due to hole conditions, so R.I.H. to clean hole, reamed from 1450 to 1550m.

Bottoms-up gas 1100 units, Started weighting mud up to 9.6 ppg from 9.2 ppg. R.I.H. to 1860m and reamed down to 1982m, with Bottoms-up gas 10-1650-20 units. Conditioned mud to 9.6 ppg. Continued R.I.H. to T.D. and circulated and conditioned mud to 9.7 ppg. Bottoms-up was 16-13-2 units.

9th February 1983. P.O.O.H. to 1423m. R.I.H. 6 stands to 1623m and pumped 75 bbls high viscosity mud, maximum gas 2 units. P.O.O.H. Rigged up Schlumberger and ran GR/MSFL/DLL; LDT/LNT/GR (twice but both LDT tools failed); FDC (but tool failed).

10th February 1983. Made trip to clean hole. Circulated Bottoms-up 0.4-32-4.5 units with 16 units from the top of Latrobe. P.O.O.H. and ran Schlumberger logs: LDT/CNT/GR; RFT No. 1 (pretests).

11th February 1983. Continued running RFT No. 1. Ran RFT No. 1 and collected samples from 1702.5m (formation water) and 1590m (mud filtrate). R.I.H. with NB No. 10 (HTC J22) and continued drilling from 2450m, (bottoms-up gas was 0-2-0.2 units) with background gas of 0.5 units, to a depth of 2487m.

12th February 1983. Drilling continued with a background gas of 0.5 units, with a peak of 10.5 units from a coal at 2511m. ROP's were 3-7m/hr to 2538m, with a fast break from 2516-2519m of 10-20m/hr which yielded no show. From 2539m ROP's dropped to 2-3m/hr due to the hardness of the formation and abundant pyrite in the samples.

13th February 1983. Slow drilling persisted to 2575m where a drilling break was encountered with ROP's increasing to 6m/hr. This was circulated out with no show and gas of 0.8-3.0-0.8 units. Bottoms-up were again circulated up at 2604m following an increase in ROP's from 6m/hr to 13m/hr, the sample had no show and gas was only 2-3.3-2 units. Maximum gas was 19 units from a coal at 2581m, with background levels of 2 units. Drilling continued to 2633m at 3-6m/hr.

14th February 1983. Drilled ahead to 2664m where bottoms-up were circulated following a drill break, with ROP's increasing from 6m/hr to 14m/hr. No show was detected and gas values were 3.1-4.3-1.9 units. Drilling resumed to 2678m where the bit was pulled after 50.23 hours and 192,700 turns. NB No. 11, (HTC J33) was R.I.H. and drilled to 2683m. Trip gas was 0.7-10-4 units with background levels for the day being 3 units. Pump pressure values were about 50% less than calculated from Corelab hydraulics program and the bit was pulled due to a suspected washout.

15th February 1983. P.O.O.H. continued, examining pipe for washout. No washout was found so R.I.H. to casing shoe and tested pumps. The pumps proved to be 97% efficient and so P.O.O.H. to recheck for washout, which was found in the junk sub. R.I.H. with RR 13 (HTC J33) and drilled ahead to 2715m. Trip gas was 0.8-10.5-2.0 units, and background gas was 2 units with a maximum of 4 units from 2696m.

16th February 1983. Drilled ahead to 2763m where bottoms-up were circulated following a drill break; ROP's had increased from 1.5-3m/hr to 12-14m/hr. No show was evident and gas was 0.4/8.0/6.8 units. Drilling continued to 2767m. Background gas levels were around 2 units.

17th February 1983. Drilling slowed to less than 1m/hr and the bit was pulled after 28 hours and 97,000 revolutions. At the surface, it was discovered that the bit was bald. R.I.H. with NB No. 14 (HTC J44) trip gas was 1-9-4 units. Drilled to 2806.3m, where bottoms-up were circulated following a drill break at 2803m, ROP's increased from 5m/hr to 12m/hr.

18th February 1983. Bottoms-up were 13-64-13 units and a slow streaming cut was found in the sandstone, so a decision was made to core. R.I.H. with C/B and cut core No. 2 from 2806.3 to 2824m. Maximum gas while coring was 16.1 units, after bottoms-up prior to coring of 0.2-7-4 units, and background gas 5 units. Recovery was 14.1m out of 17.7m cut. (79.7%)

19th February 1983. Running in the hole with Bit No. 13 (J33) and reaming the core hole from 2806 to 2824m (Trip Gas was 14-61-14 units.) BG levels of gas returned to 5 units. Drilling 12 $\frac{1}{4}$ " hole to 2886m, ROP was 2-5m/hr. After flow checking a drilling break of 3-27m/hr (no flow), Bottoms-Up were circulated. (No increase in gas above BG level and no lithology change) and drilling continued to 2895m (ROP's 2-5m/hr) where another break of 4-20m/hr was flow checked (no flow) and circulated out (Bottoms-up gas 0.8-3.2-1.3 units with no lithology change.)

20th February 1983. Drilling continued from 2895 to 2937m with low ROP's of 2-7m/hr and after a break of 6-21m/hr at 2937m the well was again flow checked (no flow) and circulated out (B/U, BG levels and no lithology change). BG gas levels had now dropped to 0.3-0.6 units. Drilling then proceeded on to 2953m where, after 6m of very low ROP's (1-3m/hr), it was decided to pull the bit after circulating B/U. Dropped a survey (3<sup>0</sup> when recovered), pumped a slug and P.O.O.H. (BCO was 3-4-1/16.)

21st February 1983. R.I.H. with Bit No. 14 (HTC J33) drilled from 2953 to 3013m. Trip gas was 25-70-45 units and drilling proceeded with low ROP's of 2-4m/hr and BG levels of gas under 1 unit until 2978m where BG gas increased to 5 units with no apparent change in lithology which remained primarily siltstone.

22nd February 1983. Drilling ahead to 3040m and flow checking at 3038m (no flow) the riser was flushed for  $\frac{1}{2}$  hour and bottoms-up circulated after a drilling break of 3-17m/hr, but no gas above BG level of 6-8 units or lithology change was observed. Drilling continued to 3054m with flow checks of 3045m and 3054m (no flow), but on circulating out this break (9-22m/hr), no gas above BG was evident from B/U; connection gas of 6.3-16.2-6.2 units was observed from 3051m. Continuing to 3075m and flow checking at 3056m (no flow), FC gas was observed as 6.2/81/18.3 units and connection gas from 3061m was 14.7-43.5-8.3. CG from 3070m was masked by formation gas of 6.3-73.5-10.6 units. A 10-10-10 was conducted at 3075m and yielded 6.6-20.7-23.6 units. Lithology for the interval (3045-3060m) was 30 to 70% sandstone decreasing from 10 to 20% after 3060m with none but dull gold mineral fluorescence evident. Drilling on to 3078m the well was again flow checked (no flow) and circulated out. Maximum gas while CO was 10-47-8 units, (Drilling break, 8-36m/hr.) B/U gas was 5.5 units. A drill off could be clearly observed in the "d" trend from 3020-3040m indicating abnormal pressure and then again below 3060m with lithological scattering in between. Mud weight was increased from 9.5 to 9.9 ppg at 3062m and then again to 10.0 ppg after 3069m.

23rd February 1983. Circulating out at 3078m to clear gas and cuttings from the hole, the mud weight was increased to 10.5 ppg and a 10/10/10 performed prior to drilling ahead. (Result was 3-20.6-14.0 units.) Drilling on to 3085m from 3078m, ROP was only 3-5m/hr and gas remained at a BG level of 7-8 units. B/U were circulated at 3085m (7.1-7.0-5.6 units) and circulation continued to condition the mud while weighting up to 10.7 ppg and losing mud to the formation at 40-60 bbls/hr. After circulating for 4 hours and flushing the choke and kill lines with 10.4 ppg mud another 10/10/10 was conducted (negative) and circulation continued, reducing mud weight to 10.3 ppg prior to pumping a slug and P.O.O.H. to 2528m. Running back to bottom, B/U gas was 1.3 units and circulation continued to condition mud at 10.3 ppg.

24th February 1983. Conducting another 10/10/10 the hole was found to

be still taking 24 bbls/hr on static test and after 2 hours of circulation and another 10/10/10 (still negative) a 21 stand wiper trip was conducted (gas 1.3 units) and the mud weight reduced to 10.2 ppg. Another static test while conditioning the mud indicated mud losses were down to 12 bbls/hr. After 7 hours of circulating and conditioning, another test indicated zero mud loss and, pumping a slug, a wiper trip to the casing shoe (808m) was made. Wiper Trip gas on return to bottom was 1.5-3.5-0.5 units and another static test again indicated no losses. Dropping a survey ( $4\frac{1}{2}^{\circ}$  when retrieved) and pumping another slug, P.O.O.H. began.

25th February 1983. Completing P.O.O.H. at 0730 hours, Schlumberger were rigged up and the following tools run:

DLL-MSFL-GR (3084 - 2390m)

LDL-CNLG-GR (3085 - 2400m)

BHC-GR (3085 - 808m)

26th February 1983. Schlumberger continued logging:

— HDT (3084 - 1400m)

Velocity Survey (67 levels from 3075 - 712m)

Formation was observed to have taken 20 bbls in a 12-hour period prior to R/D Schlumberger and R.I.H. for a wiper trip before running RFT and CST's. B/U gas from wiper trip was 10-32-1 unit.

27th February 1983. After circulating for 6 hours, Schlumberger were rigged up and the RFT tool run with only two pretests conducted prior to tool getting stuck. (Unable to be freed with up to 7,000 lbs pull on the line.)

(RFT pretests at 3041.5 and 2893m)

After rigging up and stripping over Schlumberger line, the tool came free at 2556m (cable had been stuck 300m above the tool). Continuing to strip over the line to 2844m the RFT was pulled into the overshot.

28th February 1983. After cutting the Schlumberger line at the surface and shearing it at the RFT tool, the line was pulled from inside the drill pipe, a slug pumped and the RFT P.O.O.H. Laying down the RFT and fishing tool, a wiper trip was conducted prior to running CST's. R.I.H. to the casing shoe, 104' of the drill line was slipped and cut. Washing and reaming from 3057 to 3085m, trip gas circulated to surface was 4.6-53.6-2.3 units and the mud weight was conditioned down from 10.2 to 10.0 ppg. Pumping a slug, P.O.O.H. commenced.

1st March 1983. Completed P.O.O.H. and rigged up Schlumberger.

CST's No. 1, 2 and 3 were run.

CST No. 1 (30 shot - 6 lost)

CST No. 2 (51 shot - 4 lost)

CST No. 3 (51 shot - 3 lost)

Completing CST's, R.I.H. with open ended DP to cement as part of P & A program. Making up the circulating head and circulating B/U, gas to surface was 2-46-4.6 units.

2nd March 1983. After circulating and conditioning the mud, Plug No. 1 was cemented from 3084 to 2984m. Plug No. 2 was set from 2900 to 2700m. Plug No. 3 was set from 1600 to 1425m. Pulling back to 1280m and circulating, 134 joints of drill pipe were laid down, and then R.I.H., the cement was tagged at 1354m prior to P.O.O.H. to 858m and Plug No. 4 was cemented.

P.O.O.H. to 614m and reverse circulating out, 64 joints of DP were laid down and stripping rubber from the riser was lost in the hole. Failing in an attempt to circulate the rubber up, R.I.H. with 21 stands DP, tagging the rubber at 66m. Pumping a slug, P.O.O.H. laying down DP.

3rd March 1983. Laid down DP and BHA and then ran Schlumberger CCL to 400m. Ran JB/GR and then ran bridge plug. R.I.H. with casing gun to 152m and establish injection rate of 5 BPM @ 650 psi, then ran cement retainer and rigged down Schlumberger. R.I.H. and speared into retainer and tested the packer pumping 6 BPM at 700 psi. The ESSV was then run and R.I.H. open-ended DP to 104m and set Plug No. 5 using 430 sacks 101 class 'G' cement with 51 bbls water. Displaced cement with 8 bbls mud and P.O.O.H. to 95m and displaced riser and hole. Observed well and P.O.O.H. tested Plug No. 5 to 1000 psi, then Schlumberger ran PONGO casing cutter and blew the casing at 90m. R.I.H. and attempted to latch into casing with casing spear - NO GO.

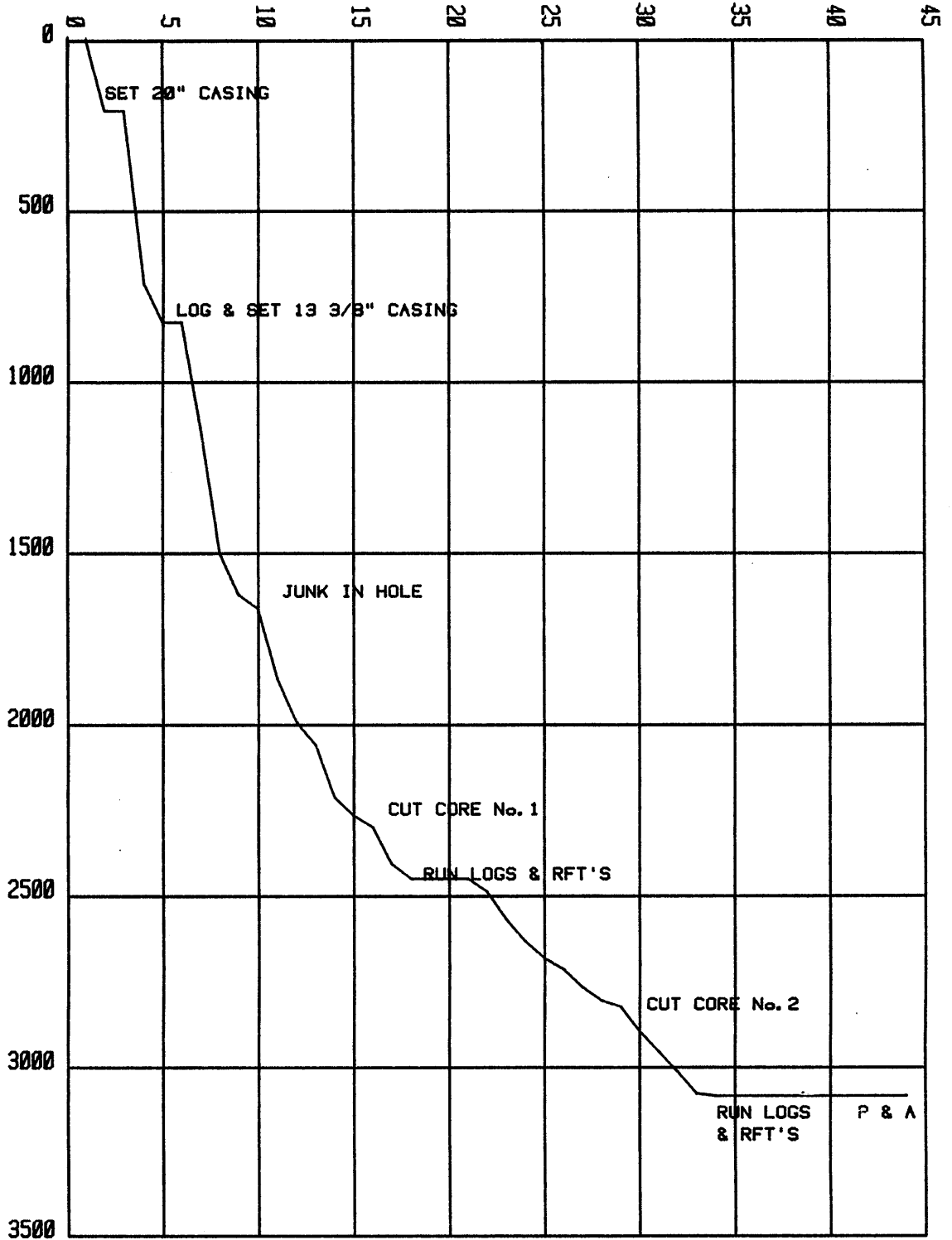
4th March 1983. R.I.H. and latched, retrieved and laid down casing. Pulled riser and BOP's and R.I.H. with casing cutter and cut 20" casing 20m below the well-head and P.O.O.H. The well-head was then pulled. The rig was then deballasted.

5th March 1983. Continued to deballast rig. Pulled the anchors. Commenced tow to new location at midnight.

8. PROGRESS LOG

PROGRESS LOG  
 ESSO AUSTRALIA LTD WIRRAH#2

|    |     |    |   |     |    |   |     |
|----|-----|----|---|-----|----|---|-----|
| 21 | JAN | 31 | 1 | FEB | 28 | 1 | MAR |
|----|-----|----|---|-----|----|---|-----|





9. BIT RECORD SHEETS

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COMPANY ESSO AUSTRALIA LTD.  
WELL WIRRAH NO. 2

BIT RECORD

Sheet No. 1

| S/NO.    | Bit No. | Make  | Type               | IADC Code | Size "                          | Jets                   | Depth In | Hole Made | Drilling Time | On Bottom Hours | Turns K | Condition T B G                   | Remarks   | COST  |
|----------|---------|-------|--------------------|-----------|---------------------------------|------------------------|----------|-----------|---------------|-----------------|---------|-----------------------------------|---|-------|
| 294 SR   | RR 1    | HTC   | OSC 3AJ<br>+26" HO | 111<br>-  | 17 1/2<br>26                    | 20/20/20<br>25/25/25   | 71       | 137.0     | 4 3/4         | 2.04            | 15.7    | 3-4-I                             | OUT AT 20" CSG PT.                                | -     |
| 295 SR   | 2       | HTC   | OSC 3AJ            | 111       | 17 1/2                          | 18/18/18               | 208      | 617.0     | 20 1/4        | 12.57           | 107.7   | 2-2-I                             | OUT AT 13-3/8" CSG PT.                            | 4442  |
| 320 KK   | 3       | HTC   | X3A                | 114       | 12 1/4                          | 16/16/16               | 825      | 446.0     | 25 3/4        | 18.77           | 166.3   | 6-8- <sup>1</sup> / <sub>16</sub> | PULLED DUE TO BIT SKIDDING, 2 CONES LOCKED.       | 2201  |
| 242 UK   | 4       | HTC   | X3A                | 114       | 12 1/4                          | 16/16/16               | 1271     | 353.0     | 23 1/4        | 15.10           | 122.0   | 8-8-1 1/2                         | PULLED DUE TO EXCESSIVE TORQUE.                   | 2201  |
| 802 NL   | 5       | HTC   | J22                | 517       | 12 1/4                          | 16/16/16               | 1624     | 2.0       | 3 1/2         | 1.66            | 6.1     | 8-2- <sup>1</sup> / <sub>8</sub>  | NOT MAKING HOLE, TORQUING UP.                     | 6788  |
| MV 195   | 6       | HTC   | J7                 | 316       | 12 1/4                          | 16/16/16               | 1626     | 37.0      | 6 3/4         | 3.99            | 26.6    | 5-2- <sup>3</sup> / <sub>8</sub>  | TORQUING UP, DUE TO JUNK IN THE HOLE.             | 1761  |
| NL 799   | 7       | HTC   | J22                | 517       | 12 1/4                          | 16/16/16               | 1663     | 395.0     | 56 3/4        | 46.42           | 174.2   | 4-3- <sup>1</sup> / <sub>8</sub>  | PULLED DUE TO DECREASED PENETRATION RATES, & TORQ | 6788  |
| 319 SK   | 8       | HTC   | J22                | 517       | 12 1/4                          | 16/16/16               | 2058     | 195.0     | 30 3/4        | 26.10           | 89.9    | 2-2-I                             | OUT AT CORE POINT NO. 1.                          | 6788  |
| 2 W 6902 | CB 8    | CHRIS | RC3                | 4         | 8 1/2                           | EQUIVALENT<br>15/15/14 | 2253     | 12.1      | 2 1/2         | 2.42            | 10.1    | 70% WN                            | RE-RUN CORE BIT.                                  | 0     |
| 318 SK   | 9       | HTC   | J22                | 517       | 12 1/4                          | 16/16/16               | 2265.1   | 184.9     | 43 3/4        | 38.89           | 125.1   | 3-4- <sup>1</sup> / <sub>8</sub>  | POOH FOR LOGGING.                                 | 6788  |
| 267 HK   | 10      | HTC   | J22                | 517       | 12 1/4                          | 16/16/16               | 2450     | 228.0     | 62 3/4        | 50.23           | 192.7   | 6-4- <sup>1</sup> / <sub>4</sub>  | POOH (HIGH-TORQUE).                               | 0     |
| 028 BL   | 11      | HTC   | J33                | 537       | 12 1/4                          | 16/16/16               | 2678     | 5.5       | 1 1/2         | 0.97            | 2.1     | 1-1-I                             | SUSPECT WASHOUT.                                  | 6637  |
| 028 BL   | RR11    | HTC   | J33                | 537       | 12 1/4                          | 16/16/16               | 2683.5   | 84.2      | 32 1/4        | 28.25           | 96.6    | 8-4- <sup>1</sup> / <sub>4</sub>  | LOW ROP'S.  | 0     |
| 063 NR   | 12      | HTC   | J44                | 547       | 12 1/4                          | 16/16/16               | 2767.7   | 38.6      | 7 3/4         | 6.93            | 18.5    | 1-1-I                             | POOH TO CORE NO. 2.                               | 4919  |
| 81 B1212 | CB12    | CHRIS | C-20               | 4         | 8 <sup>15</sup> / <sub>16</sub> | EQUIVALENT<br>14/14/13 | 2806.3   | 17.7      | 7 1/4         | 6.66            | 38.4    | 100% WN                           | RECOVER CORE NO. 2 (79%).                         | 16085 |
| 284 HB   | 13      | HTC   | J33                | 537       | 12 1/4                          | 16/16/16               | 2824     | 129.4     | 30 3/4        | 28.13           | 90.9    | 3-4- <sup>1</sup> / <sub>16</sub> | POOH (LOW ROP'S).                                 | 6637  |
| 189 HC   | 14      | HTC   | J33                | 537       | 12 1/4                          | 16/16/18               | 2953.4   | 131.6     | 42            | 34.10           | 111.9   | 3-4- <sup>1</sup> / <sub>8</sub>  | T.D. REACHED.                                     | 6637  |
|          |         |       |                    |           |                                 |                        |          |           |               |                 |         |                                   |   |       |
|          |         |       |                    |           |                                 |                        |          |           |               |                 |         |                                   |   |       |
|          |         |       |                    |           |                                 |                        |          |           |               |                 |         |                                   |   |       |
|          |         |       |                    |           |                                 |                        |          |           |               |                 |         |                                   |   |       |
|          |         |       |                    |           |                                 |                        |          |           |               |                 |         |                                   |   |       |
|          |         |       |                    |           |                                 |                        |          |           |               |                 |         |                                   |   |       |
|          |         |       |                    |           |                                 |                        |          |           |               |                 |         |                                   |   |       |
|          |         |       |                    |           |                                 |                        |          |           |               |                 |         |                                   |   |       |



COMPANY ESSO AUSTRALIA LTD.  
WELL WIRRAH NO. 2

BIT RECORD

Sheet No. 2

| S/NO.    | Bit No. | Make  | Type               | IADC Code | Size "       | Cost  | Jets                 | Depth In | Depth Out | Hole Made | Drilling Time | On Bottom Hours | Turns K | Average ROP | Average Cost/ | Condition T B G |
|----------|---------|-------|--------------------|-----------|--------------|-------|----------------------|----------|-----------|-----------|---------------|-----------------|---------|-------------|---------------|-----------------|
| 294 SR   | RR 1    | HTC   | OSC 3AJ<br>+26" HO | 111       | 17 1/2<br>26 | -     | 20/20/20<br>25/25/25 | 71       | 208       | 137       | 4 3/4         | 2.04            | 16      | 67.2        | 177.44        | 3-4-I           |
| 295 SR   | 2       | HTC   | OSC 3AJ            | 111       | 17 1/2       | 4442  | 18/18/18             | 208      | 825       | 617       | 20 1/4        | 12.57           | 108     | 49.1        | 151.57        | 2-2-I           |
| 320 KK   | 3       | HTC   | X3A                | 114       | 12 1/4       | 2201  | 16/16/16             | 825      | 1271      | 446       | 25 3/4        | 18.77           | 166     | 23.8        | 293.05        | 6-8-1/16        |
| 242 UK   | 4       | HTC   | X3A                | 114       | 12 1/4       | 2201  | 16/16/16             | 1271     | 1624      | 353       | 23 1/4        | 15.10           | 122     | 23.4        | 324.19        | 8-8-1 1/2+      |
| 802 NL   | 5       | HTC   | J22                | 517       | 12 1/4       | 6788  | 16/16/16             | 1624     | 1626      | 2         | 3 1/2         | 1.66            | 6       | 1.2         | 422720.75     | 8-2-1/8         |
| MV 195   | 6       | HTC   | J7                 | 316       | 12 1/4       | 1761  | 16/16/16             | 1626     | 1663      | 37        | 6 3/4         | 3.99            | 27      | 9.3         | 1451.86       | 5-2-3/8         |
| NL 799   | 7       | HTC   | J22                | 517       | 12 1/4       | 6788  | 16/16/16             | 1663     | 2058      | 395       | 56 3/4        | 46.42           | 174     | 8.5         | 749.31        | 4-3-1/8         |
| 319 SK   | 8       | HTC   | J22                | 517       | 12 1/4       | 6788  | 16/16/16             | 2058     | 2253      | 195       | 30 3/4        | 26.17           | 90      | 7.5         | 958.54        | 2-2-I           |
| 2W 6902  | CB 8    | CHRIS | RC3                | 4         | 8 1/2        | 0     | 15/15/14             | 2253     | 2265.1    | 12.1      | 2 1/2         | 2.42            | 10.1    | 5.0         | 4171.86       | 70% WN          |
| 318 SK   | 9       | HTC   | J22                | 517       | 12 1/4       | 6788  | 16/16/16             | 2265.1   | 2450      | 184.9     | 43 3/4        | 38.89           | 125.1   | 4.8         | 1401.46       | 3-4-I           |
| 267 HK   | 10      | HTC   | J22                | 517       | 12 1/4       | 6788  | 15/15/16             | 2450     | 2678      | 228       | 62 3/4        | 50.23           | 192.7   | 4.5         | 1411.25       | 6-4-1/4         |
| 028 BL   | 11      | HTC   | J33                | 537       | 12 1/4       | 6637  | 16/16/16             | 2678     | 2683.5    | 5.5       | 1 1/2         | 0.97            | 2.1     | 5.7         | 9638.23       | 1-1-I           |
| 028 BL   | RR11    | HTC   | J33                | 537       | 12 1/4       | 0     | 16/16/16             | 2683.5   | 2767.1    | 84.2      | 32 1/4        | 28.25           | 96.6    | 3.1         | 2337.6        | 8-4-1/4         |
| 063 NR   | 12      | HTC   | J44                | 547       | 12 1/4       | 4919  | 16/16/16             | 2767.1   | 2806.3    | 38.6      | 7 3/4         | 6.93            | 18.5    | 5.6         | 2216.73       | 1-1-I           |
| 81B 1212 | CB12    | CHRIS | C-20               | 4         | 8 15/16      | 16085 | 16/16/16             | 2806.3   | 2824      | 17.7      | 7 1/4         | 6.66            | 38.4    | 2.7         | 5443.42       | 100% WN         |
| 284 HB   | 13      | HTC   | J33                | 537       | 12 1/4       | 6637  | 16/16/16             | 2824     | 2953.4    | 129.4     | 30 3/4        | 28.13           | 90.9    | 4.6         | 1592.67       | 3-4-1/16        |
| 189 HC   | 14      | HTC   | J33                | 537       | 12 1/4       | 6637  | 16/16/18             | 2953.4   | 3085      | 131.6     | 42            | 34.10           | 111.9   | 3.9         | 1822.86       | 3-4-1/3         |
|          |         |       |                    |           |              |       |                      |          |           |           |               |                 |         |             |               |                 |
|          |         |       |                    |           |              |       |                      |          |           |           |               |                 |         |             |               |                 |
|          |         |       |                    |           |              |       |                      |          |           |           |               |                 |         |             |               |                 |
|          |         |       |                    |           |              |       |                      |          |           |           |               |                 |         |             |               |                 |
|          |         |       |                    |           |              |       |                      |          |           |           |               |                 |         |             |               |                 |
|          |         |       |                    |           |              |       |                      |          |           |           |               |                 |         |             |               |                 |
|          |         |       |                    |           |              |       |                      |          |           |           |               |                 |         |             |               |                 |
|          |         |       |                    |           |              |       |                      |          |           |           |               |                 |         |             |               |                 |
|          |         |       |                    |           |              |       |                      |          |           |           |               |                 |         |             |               |                 |

10. MUD INFORMATION SHEETS  
-----

DEPTH . . . . . Metres

MUD WEIGHT . . . . . Pounds per gallon

FUNNEL VISCOSITY . . . A.P.I. seconds

PLASTIC VISCOSITY. . . Centipoise

YIELD POINT. . . . . Pounds/100 square feet

GEL : Initial/10 min . Pounds/100 square feet

FILTRATE . . . . . A.P.I. cc

CAKE THICKNESS . . . . Thirty seconds of an inch

SALINITY : Ca/Cl . . . ppm

SOLIDS/SAND/OIL. . . . Percentage



MUD INFORMATION SHEET

COMPANY ESSO AUSTRALIA LTD.  
 WELL WIRRAH NO. 2

Sheet No. 1

|                        |         |         |          |          |           |         |         |
|------------------------|---------|---------|----------|----------|-----------|---------|---------|
| DEPTH                  | 208     | 465     | 825      | 825      | 831       | 1290    | 1601    |
| DATE                   | 22/1/83 | 24/1/83 | 25/1/83  | 26/1/83  | 27/1/83   | 28/1/83 | 29/1/83 |
| TIME                   | 24:00   | 16:00   | 13:30    | 01:00    | 06:30     | 15:00   | 11:00   |
| WEIGHT                 | 8.8     | 9.0     | 9.2      | 9.2      | 9.0       | 9.3     | 9.6     |
| FUNNEL VISCOSITY       | 100+    | 28      | 35       | 34       | 42        | 33      | 42      |
| PV/YP                  |         |         | 4/24     | 4/18     | 4/28      | 5/9     | 8/12    |
| N/K                    |         |         | .19/8.43 | .24/4.90 | .17/11.10 | .44/.90 | .49/.97 |
| GEL: INITIAL/10 MIN    |         |         | 4/8      | 4/8      | 6/12      | 4/8     | 9/15    |
| pH                     |         |         | 10.0     | 9.8      | 11.5      | 10.2    | 9.5     |
| FILTRATE: API/API HTHP |         |         |          |          |           | 12/-    | 8.9/-   |
| CAKE                   |         |         |          |          |           | 4       | 3       |
| SALINITY (CL-)         |         |         | 15K      | 15K      | 16K       | 17K     | 22K     |
| SAND                   |         |         | TR       | TR       | TR        | TR      | TR      |
| SOLIDS                 |         |         | 6        | 6        | 5         | 6       | 7       |
| OIL                    |         |         | 0        | 0        | 0         | 0       | 0       |
| NITRATES (PPM)         |         |         |          |          |           |         |         |
|                        |         |         |          |          |           |         |         |
|                        |         |         |          |          |           |         |         |

REMARKS: SEAWATER DRILLED RAN & DRILLED 12 1/4" HOLE  
 SPUDDED 17 1/2" HOLE SET 13-3/8" CASING

|                        |          |          |          |          |          |          |          |
|------------------------|----------|----------|----------|----------|----------|----------|----------|
| DEPTH                  | 1633     | 1861     | 1931     | 2050     | 2213     | 2265     | 2292     |
| DATE                   | 30/1/83  | 31/1/83  | 1/2/83   | 2/2/83   | 3/2/83   | 4/2/83   | 5/2/83   |
| TIME                   | 14:00    | 23:00    | 13:00    | 11:00    | 24:00    | 23:00    | 23:00    |
| WEIGHT                 | 9.6      | 9.6      | 9.6      | 9.5      | 9.2      | 9.2      | 9.2      |
| FUNNEL VISCOSITY       | 41       | 40       | 41       | 43       | 49       | 48       | 44       |
| PV/YP                  | 8/16     | 8/17     | 8/16     | 8/16     | 11/21    | 11/22    | 9/18     |
| N/K                    | .41/1.81 | .40/2.06 | .41/1.81 | .41/1.81 | .43/2.25 | .41/2.48 | .41/2.03 |
| GEL: INITIAL/10 MIN    | 6/14     | 8/12     | 7/5      | 7/10     | 12/17    | 14/8     | 11/16    |
| pH                     | 9.7      | 10.6     | 10.6     | 10.6     | 10.8     | 10.9     | 11.5     |
| FILTRATE: API/API HTHP | 9.4/19   | 5/18     | 5/19     | 6.2/19   | 7.2/20   | 7.0/-    | 7/16     |
| CAKE                   | 3        | 2        | 2        | 2        | 2        | 2        | 2        |
| SALINITY (CL)          | 21K      | 21.5K    | 22K      | 22.5K    | 21K      | 21.5K    | 20K      |
| SAND                   | TR       | TR       | TR       | TR       | TR       | TR       | TR       |
| SOLIDS                 | 7        | 8        | 7        | 7        | 6        | 6        | 6        |
| OIL                    | 0        | 0        | 0        | 0        | 0        | 0        | 0        |
| NITRATES (PPM)         | 100      | 150      | 180      | 170      | 170      | 160      | 120      |
|                        |          |          |          |          |          |          |          |
|                        |          |          |          |          |          |          |          |

REMARKS: ----- DRILLED 12 1/4" HOLE ----- CUT DRILLED  
 CORE 1 12 1/4" HOLE



MUD INFORMATION SHEET

COMPANY ESSO AUSTRALIA LTD.  
WELL WIRRAH NO. 2

Sheet No. 2

|                        |          |         |          |         |          |          |          |
|------------------------|----------|---------|----------|---------|----------|----------|----------|
| DEPTH                  | 2405     | 2450    | 2450     | 2450    | 2450     | 2480     | 2563     |
| DATE                   | 6/2/83   | 7/2/83  | 8/2/83   | 9/2/83  | 10/2/83  | 11/2/83  | 12/2/83  |
| TIME                   | 23:00    | 14:00   | 23:30    | 24:00   | 24:00    | 22:30    | 22:00    |
| WEIGHT                 | 9.2      | 9.1     | 9.6+     | 9.6     | 9.6      | 9.6      | 9.3+     |
| FUNNEL VISCOSITY       | 46       | 46      | 46       | 47      | 46       | 46       | 50       |
| PV/YP                  | 9/16     | 10/18   | 11/16    | 10/18   | 10/17    | 14/24    | 11/19    |
| N/K                    | .44/1.57 | .44/1.8 | .49/1.25 | .44/1.8 | .45/1.59 | .45/2.26 | .45/1.81 |
| GEL: INITIAL/10 MIN    | 9/14     | 10/17   | 10/17    | 10/18   | 10/18    | 10/35    | 11/26    |
| pH                     | 10.8     | 10.5    | 10.0     | 10.0    | 10.0     | 10.5     | 10.9     |
| FILTRATE: API/API HTHP | 6.8/10.2 | 7.2/17  | 7.6/17.2 | 7.5/17  | 6.7/17.5 | 6.2/16   | 5.4/15.2 |
| CAKE 32NDS"            | 2        | 2       | 2        | 2       | 2        | 2        | 2        |
| SALINITY (CL)          | 20.5K    | 21K     | 21.5K    | 22K     | 22K      | 20K      | 17K      |
| SAND                   | TR       | TR      | TR       | TR      | TR       | TR       | TR       |
| SOLIDS                 | 6        | 6       | 8        | 8       | 8        | 9        | 8        |
| OIL                    | 0        | 0       | 0        | 0       | 0        | 0        | 0        |
| NITRATES (PPM)         | 160      | 150     | 120      | 120     | 150      | 180      | 190      |
|                        |          |         |          |         |          |          |          |
|                        |          |         |          |         |          |          |          |

REMARKS:

DRILLED 12 1/4"  
HOLE

----- LOGGED -----

DRILLED  
12 1/4" HOLE

|                        |          |          |          |          |          |          |          |
|------------------------|----------|----------|----------|----------|----------|----------|----------|
| DEPTH                  | 2627     | 2678     | 2704     | 2765     | 2806     | 2808     | 2892     |
| DATE                   | 13/2/83  | 14/2/83  | 15/2/83  | 16/2/83  | 17/2/83  | 18/2/83  | 19/2/83  |
| TIME                   | 22:00    | 22:00    | 22:00    | 22:00    | 23:00    | 05:00    | 22:00    |
| WEIGHT                 | 9.2      | 9.2      | 9.1+     | 9.1      | 9.2      | 9.4      | 9.2      |
| FUNNEL VISCOSITY       | 48       | 46       | 40       | 48       | 55       | 52       | 58       |
| PV/YP                  | 12/20    | 12/18    | 10/15    | 10/19    | 13/26    | 14/22    | 12/24    |
| N/K                    | .46/1.53 | .49/1.46 | .49/1.21 | .44/1.8  | .41/2.94 | .47/1.88 | .41/2.71 |
| GEL: INITIAL/10 MIN    | 8/24     | 8/24     | 6/18     | 7/24     | 10/28    | 7/25     | 8/24     |
| pH                     | 10.3     | 10.5     | 10.4     | 10.4     | 10.7     | 10.5     | 10.4     |
| FILTRATE: API/API HTHP | 6.2/15.6 | 6.4/15.8 | 6.0/16.4 | 5.6/14.8 | 5.8/14.9 | 5.6/14.9 | 5.6/14.6 |
| CAKE                   | 2        | 2        | 2        | 2        | 2        | 2        | 2        |
| SALINITY (CL)          | 18K      | 18K      | 17K      | 19K      | 17K      | 17K      | 17K      |
| SAND                   | TR       | TR       | TR       | TR       | 1/4      | 1/4      | 1/4      |
| SOLIDS                 | 7        | 7        | 7        | 7        | 7        | 8        | 7        |
| OIL                    | 0        | 0        | 0        | 0        | 0        | 0        | 0        |
| NITRATES (PPM)         | 180      | 140      | 110      | 180      | 140      | 100      | 180      |
|                        |          |          |          |          |          |          |          |
|                        |          |          |          |          |          |          |          |

REMARKS:

----- DRILLED 12 1/4" HOLE -----

CORE NO. 2



MUD INFORMATION SHEET

COMPANY ESSO AUSTRALIA LTD.  
WELL WIRRAH NO. 2

Sheet No. 3

|                        |          |          |          |           |          |          |          |
|------------------------|----------|----------|----------|-----------|----------|----------|----------|
| DEPTH                  | 2937     | 2962     | 3078     | 3085      | 3085     | 3085     | 3085     |
| DATE                   | 20/2/83  | 21/2/83  | 22/2/83  | 23/2/83   | 24/2/83  | 25/2/83  | 26/2/83  |
| TIME                   | 11:00    | 09:00    | 24:00    | 23:30     | 23:00    | 23:00    | 24:00    |
| WEIGHT                 | 9.2      | 9.2      | 10.0     | 10.3+     | 10.2     | 10.1     | 10.2     |
| FUNNEL VISCOSITY       | 48       | 44       | 37       | 57        | 57       | 45       | 44       |
| PV/YP                  | 12/21    | 10/21    | 9/16     | 11/22     | 15/26    | 13/17    | 13/16    |
| N/K                    | .43/2.03 | .40/2.51 | .44/1.57 | .41/2.48  | .45/2.48 | .52/1.18 | .53/1.04 |
| GEL: INITIAL/10 MIN    | 8/24     | 8/22     | 10/19    | 14/29     | 19/28    | 11/19    | 11/18    |
| pH                     | 10.8     | 10.6     | 10.5     | 10.4      | 10.1     | 10.2     | 10.1     |
| FILTRATE: API/API HTHP | 6.2/14.9 | 6.8/16.4 | 8.2/16.8 | 10.0/19.0 | 9.2/18.0 | 8/17.2   | 7.6/17.0 |
| CAKE                   | 2        | 2        | 2        | 3         | 3        | 2        | 2        |
| SALINITY (CL)          | 17K      | 17K      | 18K      | 18K       | 18.5K    | 18K      | 18.5K    |
| SAND                   | TR       | TR       | TR       | .5        | TR       | TR       | TR       |
| SOLIDS                 | 7        | 7        | 9        | 14        | 15       | 15       | 15       |
| OIL                    | 0        | 0        | 0        | 0         | 0        | 0        | 0        |
| NITRATES (PPM)         | 120      | 120      | 180      | 120       | 210      | 190      | 180      |
|                        |          |          |          |           |          |          |          |
|                        |          |          |          |           |          |          |          |

REMARKS:

----- DRILLING TO T.D. ----- LOST CIRCULATION ---LOGGING ---

|                        |          |          |        |        |  |  |  |
|------------------------|----------|----------|--------|--------|--|--|--|
| DEPTH                  | 3085     | 3085     | 3085   | 3085   |  |  |  |
| DATE                   | 27/2/83  | 28/2/83  | 1/3/83 | 2/3/83 |  |  |  |
| TIME                   | 23:00    | 20:30    | 24:00  | 24:00  |  |  |  |
| WEIGHT                 | 10.2     | 9.9      | 9.9    | 9.8    |  |  |  |
| FUNNEL VISCOSITY       | 37       | 40       | 44     | 45     |  |  |  |
| PV/YP                  | 11/14    | 12/16    | 13/19  | 13/18  |  |  |  |
| N/K                    | .53/.94  | .51/1.13 |        |        |  |  |  |
| GEL: INITIAL/10 MIN    | 9/16     | 8/17     | 12/22  | 12/28  |  |  |  |
| pH                     | 9.8      | 10.4     | 10.2   | 10.8   |  |  |  |
| FILTRATE: API/API HTHP | 8.2/17.4 | 9.4/17.8 | 9.6/18 | -      |  |  |  |
| CAKE                   | 2        | 2        | 2      | 2      |  |  |  |
| SALINITY (CL)          | 18.5K    | 20K      | 20K    | -      |  |  |  |
| SAND                   | TR       | .5       | .5     | -      |  |  |  |
| SOLIDS                 | 15       | 11       | 11     | -      |  |  |  |
| OIL                    | 0        | 0        | 0      | -      |  |  |  |
| NITRATES (PPM)         | 190      | 180      | 170    | -      |  |  |  |
|                        |          |          |        |        |  |  |  |
|                        |          |          |        |        |  |  |  |

REMARKS:

LOGGING FISHING CST'S PITS  
FOR RFT TOOL EMPTIED  
AFTER  
CEMENTING  
IN. P&A  
PROGRAM



11. LITHOLOGICAL SUMMARY

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## 11. LITHOLOGICAL SUMMARY

The primary objective of WIRRAH NO. 2 was to assess the hydrocarbon show encountered in WIRRAH NO. 1. The secondary objective was to determine the extent and significance of hydrocarbon shows and the stratigraphic enclosure below 2700m in WIRRAH NO. 1.

(NB: The formation tops are open to speculation and are based entirely on examination of cuttings. All depths from R.K.B.)

### Gippsland Limestone (230 - 1345m)

The Gippsland Limestone consisted generally of a white to light grey, well sorted to moderately sorted, calcarenite/calcsiltite. The formation is fossiliferous for the most part, the top section being generally more fossiliferous, and coarser in calcite grain size. The fossils encountered in the top section are typically, foraminifera, Bryozoa, Echinodermata, Gastropodia and broken shell fragments. The lower part of the formation was less argillaceous, with the grain size becoming finer to calcsiltite/calculutite. There was significantly less microfossils in this section, but a greater proportion of glauconite.

A small sandstone bed was encountered between 795m and 805m (R.K.B.). The sandstone was light grey to very light grey, moderately sorted, very coarse to coarse grained with a calcareous matrix. Background gas remained a steady 0.1-0.2 units to 820m, below which the background increased to 0.5 units. No gas peaks of only significance were recorded in the Gippsland Limestone.

### Lakes Entrance Formation (1345 - 1490m)

The Lakes Entrance formation throughout its extent was a medium grey to medium light grey, firm to very soft, subangular to subrounded, very calcareous mudstone. The microfossils encountered were foraminifera, which occurred throughout the formation. Traces of glauconite and pyrite were also common.

Background gas was consistently around 5 - 10 units, with C<sub>1</sub> to C<sub>2</sub> recorded. No gas peaks were encountered.

### Latrobe Formation (1490 - T.D.)

The Latrobe formation was a sequence of interbedding between sandstone, siltstone, coal and claystone units. The formation can be separated into three sections for WIRRAH NO. 2.

The top section was sandstones interbedded with coals, with a minor siltstone unit. The sandstone was predominately, clear to frosty, coarse to medium grained, sub-rounded to sub-angular, well-moderately

sorted, with dolomite cement. Traces of pyrite and glauconite were common. A yellow fluorescence was noted in some beds but no cut. The coal was black to dark grey, blocky, firm to hard, and was usually brittle. The siltstone was medium to light grey, to browns, firm to soft and very calcareous. Some beds had carbonaceous speckling, and traces of mica. Glauconite was common to most siltstone beds also.

Background gas in this top section varied between 5 and 10 units, gas peaks of 650 units occurred at 1527m, and 61 units at 1598m. The 650 units was associated with the change in lithology from the Lakes Entrance to the more coarser Latrobe Group. The other peak was associated with coal beds.

The middle section of the Latrobe formation was dominated by a sandstone interbedded with siltstone, coals, and a claystone. The sandstone was similar in texture and composition to the sandstone in the top Latrobe except for a more medium grain size. The siltstone and coal units remain similar to those found in the top Latrobe. The claystone was white to buff, very soft and sticky. Carbonaceous laminations were common in some cuttings, traces of pyrite and foraminifera are common also. Background gas was around 20 - 25 units, major gas peaks were associated with coal units.  $C_1 - C_3$  was recorded in this section. The lower Latrobe is dominated by an interbedded sandstone/siltstone sequence which grades predominantly into a siltstone with minor sandstone.

The interbedding begins around 2500m with the coals and claystones of the middle section fading out. The sandstone was white to light grey to clear, and frosty. Generally medium grained, subangular to subrounded with dolomitic cement. A sand at 2395 - 2410m showed a dull gold fluorescence with a slow milky cut, and instant crush cut. Other fluorescence in this section was at 2795 - 2811m, and 2890 - 2970m. Conglomerate was encountered between 2765m to 2800m. This unit was light grey, clear to frosty, very coarse grained, sub-rounded, poorly sorted, dolomitic cement with abundant pyrite.

The siltstone in the interbedded section remains the same as found in top and middle Latrobe. The final section of the well has a siltstone which is dark grey, firm and brittle. It is sub-fissile and non calcareous, and sometimes platy. Traces of pyrite and muscovite were common.

Background gas was around 3 - 5 units. Gas peaks associated with sandstone beds.

Two cores were cut in the Latrobe formation. Core No. 1 was located in the middle Latrobe, associated with sandstone, siltstone and claystone units. The second Core was cut following the conglomeratic unit at 2800m.

12. K.F.T. DATA SHEETS

COMPANY : ESSO AUSTRALIA LTD WELL : WIRRAH NO. 2

RUN No. : 2

PRESSURE GAUGE TYPE : H.P.



| CHAMBER No.            | 1                      | 2                   |  |                       |
|------------------------|------------------------|---------------------|--|-----------------------|
| CHAMBER CAPACITY       | 6 GAL                  | 2 $\frac{3}{4}$ GAL |  |                       |
| CHOKE SIZE             |                        |                     |  |                       |
| SEAT No.               | 23                     | 24                  |  |                       |
| DEPTH (m) (from RKB)   | 1702.5                 | 1590                |  |                       |
| A RECORDING TIMES      |                        |                     | OIL PROPERTIES CONT.   |                       |
| TOOL SET               | 0450                   | 0533                | ODOUR  |                       |
| PRETEST OPEN           | 0450                   | 0533                | POUR POINT ( ° )   |                       |
| TIME OPEN              |                        |                     | COMMENTS   |                       |
| CHAMBER OPEN           | 0457                   | 0535                | (c) WATER PROPERTIES   |                       |
| CHAMBER FULL           | 0507.5                 | 0541.5              | RESISTIVITY ( )  | 0.73@ 25°C   0.3@23°C |
| FILL TIME              | 10.5                   | 6.5                 | Cl (frm. resis.) (ppm)   | 8K   23K              |
| START BUILD UP         | 0507.5                 | 0545                | Cl (frm. titrat) (ppm)   | 5K   14K              |
| FINISH BUILD UP        | 0510                   | 0545                | NO <sub>3</sub> (ppm)  | 25                    |
| BUILD UP TIME          |                        |                     | pH   | 7.5   10              |
| SEAL CHAMBER           | 0510.5                 | 0545                | OTHER TRACERS  |                       |
| TOOL RETRACT           | 0512                   | 0546                | DENSITY ( )  | 8.4   8.5+            |
| TOTAL TIME             |                        |                     | FLUORESCENCE   |                       |
| B SAMPLE PRESSURES     |                        |                     | COLOUR   | GY/BRN   BRN          |
| IHP (psig)             | 2869.4                 | 2678.0              | COMMENTS   |                       |
| ISIP (psia)            |                        |                     | (d) OTHER SAMPLE PROPERTIES  |                       |
| IFP (psia)             | 1974                   | 2186.7              | F MUD PROPERTIES   |                       |
| FFP (psia)             | 2125                   | 2189.6              | TYPE   | SW/POLY/LIGND/GEL     |
| FSIP (psia)            | 2404.7                 | 2247.1              | RESISTIVITY ( )  |                       |
| FHP (psia)             | 2883.4                 | 2693.4              | Cl (frm. resis.) ( )   |                       |
| TEMP. CORR. ( )        |                        |                     | Cl (frm. titrat) (ppm)   | 22K                   |
| COMMENTS               |                        |                     | NO <sub>3</sub> Drld/1st. circ (ppm)   | 150                   |
| C TEMPERATURE          |                        |                     | pH   | 10.4                  |
| DEPTH TOOL REACHED ( ) |                        |                     | OTHER TRACERS  |                       |
| MAX. REC. TEMP. ( ° )  |                        |                     | DENSITY (ppg)  | 9.6                   |
| TIME CIRC. STOPPED     |                        |                     | G GENERAL COMMENTS   |                       |
| TIME SINCE CIRC.       |                        |                     | AN RFT RUN @ 3085M SUCCEEDED IN OBTAINING 2 PRETEST PRESSURES BEFORE BECOMING STUCK.<br>NO MORE RFT RUNS WERE MADE ON WIRRAH NO. 2 |                       |
| D SAMPLE RECOVERY      |                        |                     |  |                       |
| SURFACE PRESSURE ( )   | 500                    | 0                   |  |                       |
| VOL. GAS ( )           | 0.95                   | 0.65                |  |                       |
| VOL. OIL ( )           |                        |                     |  |                       |
| VOL. WATER ( )         | 21.75                  | 9.75                |  |                       |
| VOL. FILTRATE ( )      |                        |                     |  |                       |
| VOL. CONDENSATE ( )    |                        |                     |  |                       |
| VOL. OTHER ( )         |                        |                     |  |                       |
| E SAMPLE PROPERTIES    |                        |                     |  |                       |
| (a) G                  | c1 (ppm)               | 125425              | 270147   |                       |
| A                      | c2 (ppm)               | 5112                | 13631  |                       |
| S                      | c3 (ppm)               | 798                 | 2396   |                       |
|                        | c4 (ppm)               | 78                  | 260  |                       |
| C                      | c5 (ppm)               | TR                  | TR   |                       |
| O                      | c6+ (ppm)              | -                   | -  |                       |
| M                      | CO <sub>2</sub> (%)    | 0.4                 | 0.6  |                       |
| P                      | H <sub>2</sub> S (ppm) | 10                  | -  |                       |
| (b) OIL PROPERTIES     |                        |                     |  |                       |
| DENSITY: ( )           | HYDROMETER             |                     |  |                       |
|                        | REFRACTOMETER          |                     |  |                       |
| REFRACTIVE INDEX       |                        |                     |  |                       |
| COLOUR                 |                        |                     |  |                       |
| FLUORESCENCE           |                        |                     |  |                       |
| G.O.R. ( )             |                        |                     |  |                       |

PORE PRESSURE DATA SHEET

DATA FROM: RFT NO. 1

COMPANY: ESSO AUSTRALIA LTD.

WELL : WIRRAH NO. 2

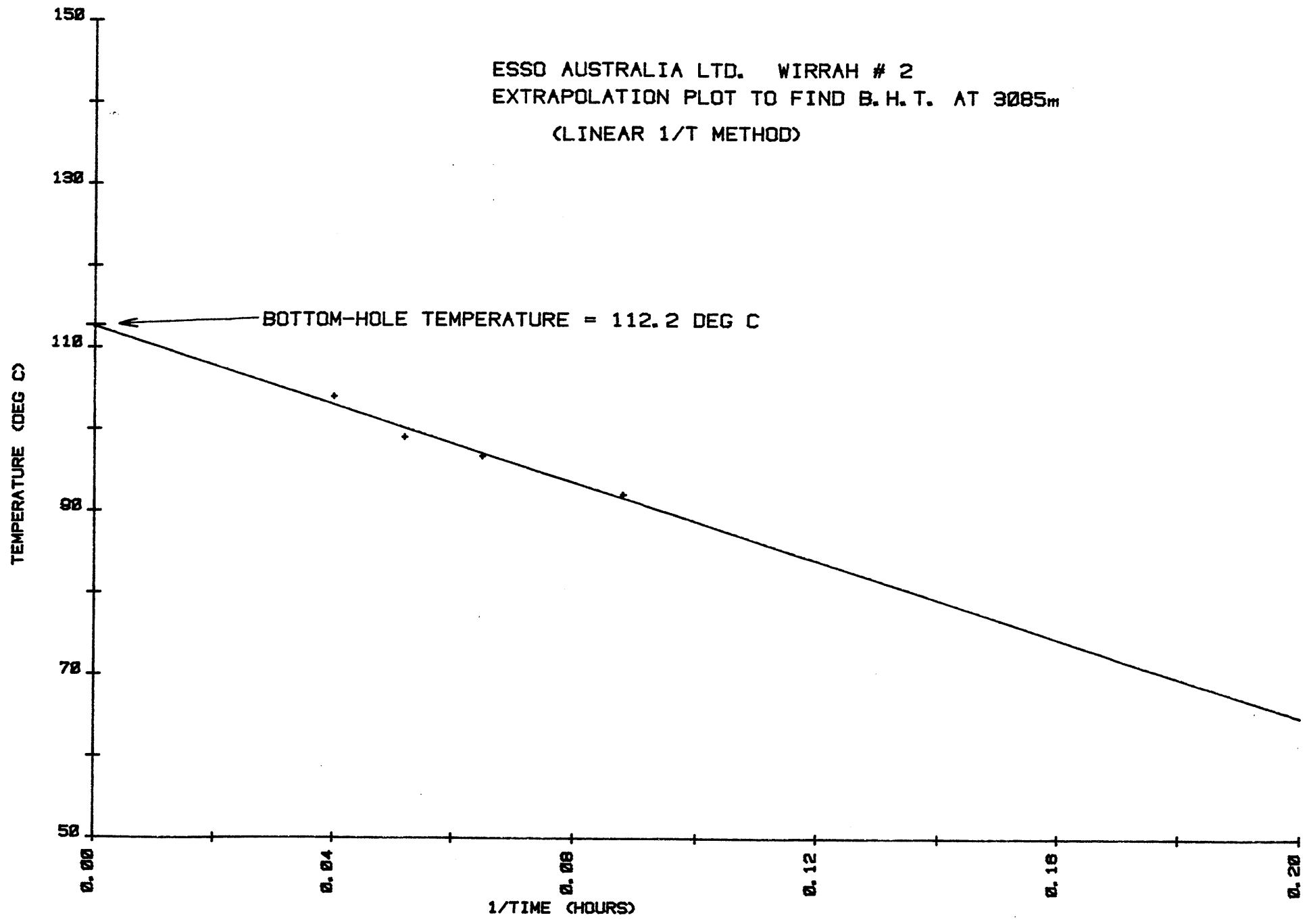
| DEPTH<br>(FROM RKB) | DEPTH<br>(FROM MSL)               | PORE PRESSURE           | PORE PRESSURE<br>GRADIENT ENM (MSL) | PORE PRESSURE<br>GRADIENT |
|---------------------|-----------------------------------|-------------------------|-------------------------------------|---------------------------|
| IN METERS           | TOTAL VERTICAL<br>DEPTH IN METERS | (PSIA)                  | (PPG)                               | (PSI/100FT)               |
| 2425                | 2404                              | SEAL FAILURE            |                                     |                           |
| 2423.5              | 2402.5                            | SUPER CHARGED<br>3518.2 | 8.584                               | .446                      |
| 2381.5              | 2360.5                            | 3382.0                  | 8.398                               | .437                      |
| 2369.5              | 2348.5                            | 3374.2                  | 8.438                               | .438                      |
| 2268.0              | 2247.0                            | TIGHT                   |                                     |                           |
| 2252.0              | 2231.0                            | 3194.3                  | 8.436                               | .436                      |
| 2243.0              | 2222.0                            | 3181.4                  | 8.392                               | .436                      |
| 2209.5              | 2188.5                            | 3136.6                  | 8.401                               | .437                      |
| 2195.0              | 2174.0                            | 3115.3                  | 8.400                               | .437                      |
| 1836.0              | 1815.0                            | 2590.6                  | 8.366                               | .435                      |
| 1752.5              | 1731.5                            | 2472.7                  | 8.371                               | .435                      |
| 1725.3              | 1704.3                            | 2435.3                  | 8.376                               | .436                      |
| 1702.5              | 1681.5                            | 2404.5                  | 8.382                               | .436                      |
| 1619.5              | 1598.5                            | 2289.8                  | 8.397                               | .437                      |
| 1602.5              | 1581.5                            | 2265.9                  | 8.398                               | .437                      |
| 1590.5              | 1569.5                            | SEAL FAILURE            |                                     |                           |
| 1590.0              | 1569.0                            | 2247.0                  | 8.395                               | .437                      |
| 1568.0              | 1547.0                            | SEAL FAILURE            |                                     |                           |
| 1569.0              | 1548.0                            | 2217.0                  | 8.395                               | .437                      |
| 1550.0              | 1529.0                            | 2190.4                  | 8.397                               | .437                      |





13. B.H.T. ESTIMATION

ESSO AUSTRALIA LTD. WIRRAH # 2  
EXTRAPOLATION PLOT TO FIND B. H. T. AT 3085m  
(LINEAR 1/T METHOD)



CORE LAB  
=====

B.H.T. INTERPOLATION (HORNER METHOD) AT 3085 M

STRAIGHT LINE LEAST SQUARES BEST FIT

HORNER TIME ON A LOGARITHMIC SCALE AGAINST  
TEMPERATURE ON A LINEAR SCALE

ENTERED DATA:

| DATA SET # | HORNER TIME $\frac{(T+t)}{T}$ | TEMPERATURE ( $^{\circ}$ C) | LOG:        |
|------------|-------------------------------|-----------------------------|-------------|
| 1          | 1.199                         | 92.0                        | DLL-MSFL-GR |
| 2          | 1.145                         | 96.7                        | LDL-CNLG-GR |
| 3          | 1.116                         | 99.0                        | BHC-GR      |
| 4          | 1.089                         | 104.0                       | HDT         |

COEFFICIENT & CONSTANT:

$Y = m \cdot \log(X) + c$  where  $m = -2.7458034E 02$  and  $c = 1.1318595E 02$

INTERPOLATED DATA:

| HORNER TIME | TEMPERATURE |
|-------------|-------------|
| 1.000       | 113.2       |

NOTE: HORNER TIME IS  $(T+t)/T$  WHERE  $T$  = Time since circulation stopped  
 $t$  = Time of circulation

CORE LAB  
=====

B.H.T. INTERPOLATION (LINEAR 1/T METHOD) AT 3085 M

STRAIGHT LINE LEAST SQUARES BEST FIT

1/TIME ON A LINEAR SCALE AGAINST  
TEMPERATURE ON A LINEAR SCALE

ENTERED DATA:

| DATA SET # | 1/TIME | TEMPERATURE (°C) | LOG:        |
|------------|--------|------------------|-------------|
| 1          | 0.088  | 92.0             | DLL-MSFL-GR |
| 2          | 0.065  | 96.7             | LDL-CNLG-GR |
| 3          | 0.052  | 99.0             | BHC-GR      |
| 4          | 0.040  | 104.0            | HDT         |

COEFFICIENT & CONSTANT:

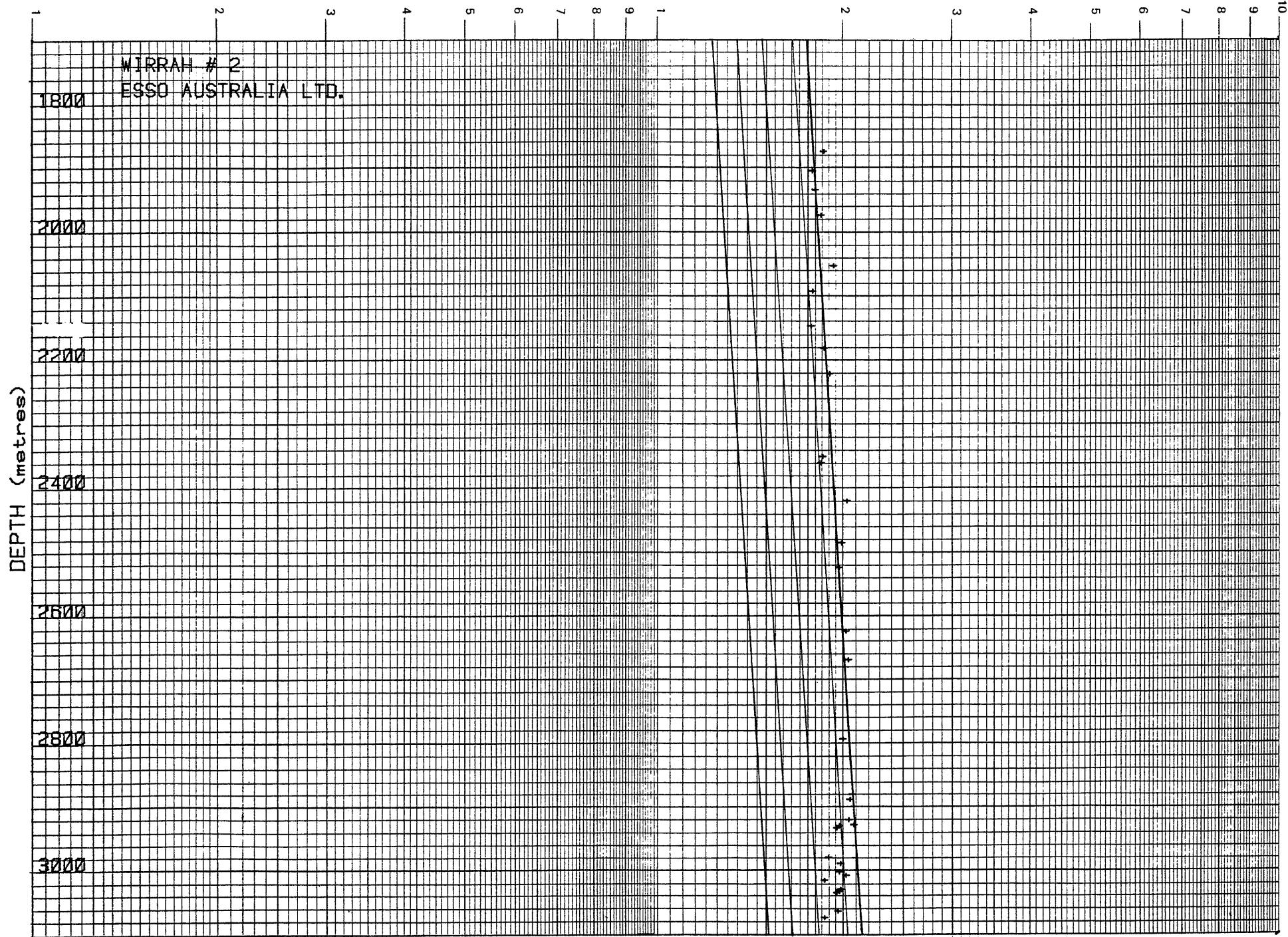
$Y = m.X + c$  where  $m = -2.3485600E 02$  and  $c = 1.1224300E 02$

INTERPOLATED DATA:

| 1/TIME | TEMPERATURE |
|--------|-------------|
| 0.000  | 112.2       |

14. PORE PRESSURE SUMMARY AND P.I.T./L.O.T. DATA

"d" PLOT FROM SELECTED POINTS BASED ON "SHALY" LITHOLOGY



CORE LAB

=====

STRAIGHT LINE LEAST SQUARES BEST FIT

DEPTH ON A LINEAR SCALE AGAINST "d" ON A LOGARITHMIC SCALE

ENTERED DATA:

| DATA SET # | DEPTH  | "d"  |
|------------|--------|------|
| 1          | 1870.0 | 1.87 |
| 2          | 1900.0 | 1.79 |
| 3          | 1930.0 | 1.81 |
| 4          | 1970.0 | 1.85 |
| 5          | 2050.0 | 1.94 |
| 6          | 2090.0 | 1.79 |
| 7          | 2145.0 | 1.78 |
| 8          | 2180.0 | 1.87 |
| 9          | 2220.0 | 1.91 |
| 10         | 2350.0 | 1.86 |
| 11         | 2360.0 | 1.85 |
| 12         | 2420.0 | 2.04 |
| 13         | 2486.0 | 2.00 |
| 14         | 2525.0 | 1.98 |
| 15         | 2625.0 | 2.03 |
| 16         | 2670.0 | 2.05 |

COEFFICIENT & CONSTANT:

$\log(Y) = m.X + c$  where  $m = 6.3533912E-05$  and  $c = 1.3642577E-01$

CORE LAB  
\*\*\*\*\*

STRAIGHT LINE LEAST SQUARES BEST FIT

DEPTH ON A LINEAR SCALE AGAINST "d" ON A LOGARITHMIC SCALE

ENTERED DATA:

| DATA SET # | DEPTH  | "d"  |
|------------|--------|------|
| 17         | 2795.0 | 2.01 |
| 18         | 2882.0 | 2.08 |
| 19         | 2890.0 | 2.06 |
| 20         | 2922.0 | 2.05 |
| 21         | 2930.0 | 2.09 |
| 22         | 2931.5 | 1.98 |
| 23         | 2935.0 | 1.96 |
| 24         | 2981.0 | 1.90 |
| 25         | 2990.5 | 1.99 |
| 26         | 3003.6 | 1.98 |
| 27         | 3009.0 | 2.03 |
| 28         | 3017.0 | 1.87 |
| 29         | 3031.0 | 1.99 |
| 30         | 3033.0 | 1.98 |
| 31         | 3034.6 | 1.98 |
| 32         | 3036.4 | 1.96 |
| 33         | 3065.0 | 1.97 |
| 34         | 3075.6 | 1.87 |

COEFFICIENT & CONSTANT:

$\log(Y) = m.X + c$  where  $m = 3.0609491E-05$  and  $c = 2.0829422E-01$



#### 14. PORE PRESSURE SUMMARY

WIRRAH NO. 2 was drilled in the Gippsland Basin. This area has previously been found to be normally pressured down to the Lower Latrobe formations where a transition zone into abnormal pressures was found to occur in WIRRAH NO. 1. The first indications of increased pore pressure in WIRRAH NO. 1 occurred below 2960m and increased to 10.6 ppg equivalent mud weight at 2973.8m. A similar pressure profile was expected in WIRRAH NO. 2.

Core Laboratories Field Laboratory 802 and personnel continuously monitored various pressure prediction parameters and verified the expected pressure profile.

The pressure detection parameters primarily used are plotted on the "Drill Data Plot" (see plots at end of report). Due to the absence of shales the drilling exponent (d'c') does not provide reliable results in the predominantly sandstone - siltstone formations encountered. However, a plot of selected d'c' exponents from 'shaly' units provided some qualitative results, which corresponded with Schlumberger Repeat Formation Test information and pore pressures derived from 10-10-10 tests and connection gas data.

The d'c' exponents, from the Drill Data Plot, gives an increasing trend down to 1100m which reflects an increasing degree of formation compaction. This trend then straightens before deflecting to the left where an increasing silt and decreasing carbonate content produced higher drillability.

From 1511 to 1527m, at the top of the Latrobe Formation, a sand was encountered which yielded 650 units of gas from increased rate of penetration (96m/hr). Previous gas levels had been 5-10 units in the Lakes Entrance Formation. The pore pressure was originally thought to have risen to about 9.0 ppg equivalent mud weight, in this section, however later RFT's established the formation pressure to be 8.4 ppg E.M.W., the mud weight was consequently increased from 9.2 to 9.6 ppg.

The d'c' exponent becomes scattered although a normal compaction trend is manifested, reflecting the interbedded nature of the formation to 2550m. In this section gas levels dropped off to 2-5 units with peaks associated with coal and sandstone units and mud weight was reduced to 9.2 ppg at 2170m.

At 2450m, whilst P.O.O.H. for wireline logs, the hole was tight and swabbing occurred producing 1100 units of gas on circulating out. The mud weight was consequently increased to 9.6 ppg but on resuming drilling at 2500m lowered back down to 9.3 ppg, to avoid masking shows and connection gas.

Below 2550m, the d'c' exponent establishes a vertical trend, with drill-off's associated with sandstones. Gas levels increased to 10-15 units between 2775m and 2850m, but these were associated with an increased sand lithology, but the mud weight was increased to 9.4 ppg before gas levels dropped off at 2870m to 1 unit, and the mud weight again reduced to 9.2 ppg.

The d'c' exponent on the 'Drill Data Plot' started to show a decreased trend at 3030m. This is emphasised when selected points were plotted from 'shaly' lithologies. Using an IMCO overlay on this plot (see the accompanying plot) a baseline was established for a pore pressure of 8.4 ppg E.M.W. A definite trend reversal is detected at 2890m and a pore pressure of 9.5 ppg E.M.W. is indicated at T.D., having built up through a transition zone.

Gas levels remained low at 1 unit, with exception at 2940m and 2960m, but increased to 5 units at 2980m.

Connection gas was first detected at 3051m of 6.3-16-6 units with flow check gas at 3056m, 6-81-18 units; and further connection gas from 3061m of 15-44-8 units associated with an increase in background levels to 10-15 units. A 10-10-10 test conducted at 3075m yielded 7-21-24 units. The well was flow checked at 3078m and circulated out with maximum gas of 10-47-8 units from a drill break (8 to 36m/hr) with bottoms up of 5.5 units.

Mud weight had been increased to 9.5 ppg at 3000m and further increased, in stages, to 10.5 ppg at 3078m, where a 10-10-10 was performed with the result of 3-21-14 units. On drilling ahead low ROP's prevailed and gas remained at a background level of 7-8 units.

On circulating out at 3085m gas levels remained steady at 7.1-7.0-5.6 units indicating an overbalanced situation. The mud weight was again increased to 10.7 ppg but the well started to take fluid at the rate of 40-60 bbls/hr. Mud weight was therefore reduced to 10.3 ppg, following a 10-10-10 which gave no indication of an underbalanced condition. Trip gas was 1.3 units emphasising the overbalanced system.

Schlumberger's Repeat Formation Tester (RFT) tool gave Formation

Pressures of 8.4 ppg E.M.W. down to 2425m and then 8.99 ppg E.M.W. at 2893m and 9.25 ppg E.M.W. at 3041.5m which confirm those calculated during drilling.

The temperature plot is inconclusive as regards to any evaluation for formation pressures due to the frequent treatment of the mud system, bit changes and circulations out during drilling. A normal trend is indicated by the 'Flowline' end-to-end curve to 2680m, with an increased trend below this to 2900m which could be indicative of increased Pore Pressure. A decreasing or vertical, d'c' exponent trend had begun to establish itself in this area, however, no RFT data is available for this interval. The Temperature trend resorts to the 'normal' one after 2900m and continues through the known overpressure zone with no deflection evident. Hence this tool remains highly questionable in these circumstances. A thermal gradient of  $4.6^{\circ}\text{C}/100\text{m}$  ( $2.84^{\circ}\text{F}/130'$ ) was calculated from this plot.

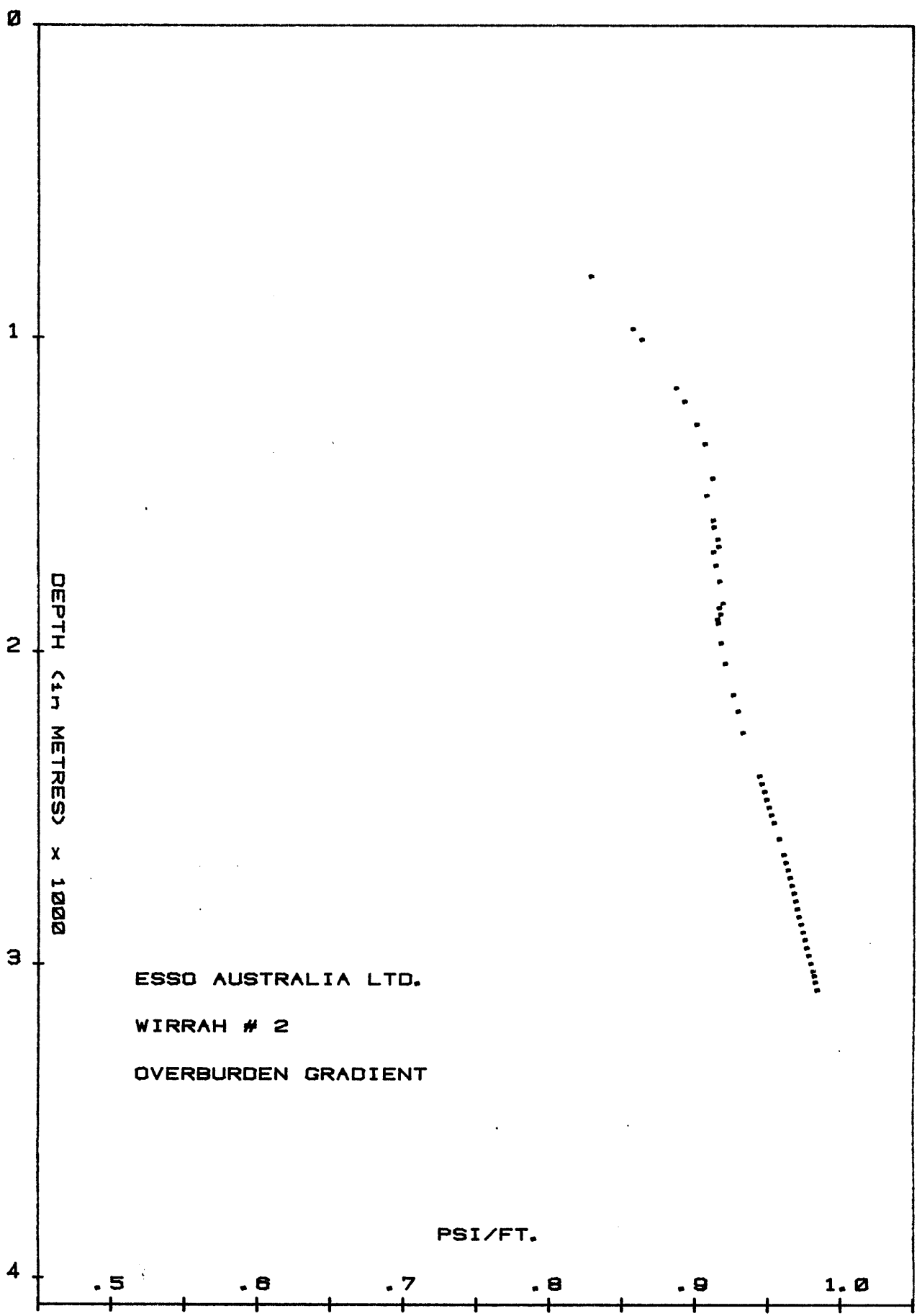
No Wireline Plot was drawn due to the absence of true shales in the well.

The Pressure Plot is the pressure conclusion log for this well; it presents the normally pressured section from surface to 2770m and the transition zone to the abnormally pressured section at T.D. It mirrors that seen on WIRRAH NO. 1, although pressures encountered on that well were found to be higher.

The Fracture Gradient was derived using information obtained from the Leak-Off Test at the 13-3/8" casing shoe at 808m, with a Leak-Off at 17.5 ppg E.M.W. However, this value is deceptively high due to the plastic nature of the formation (Limestone) in which the test was conducted. A valid test would have to be conducted in the weakest formation below the casing shoe, which is normally the next sandstone unit.

The mud loss experienced at T.D. is most likely to be through the highly permeable sandstone at the Top of the Latrobe. Although it must not be overlooked that there is the possibility that the formation broke down due to the increased mud weight to 10.7 ppg with an E.C.D. of 10.9 ppg. (In WIRRAH NO. 1, mud weight up to 9.7 ppg was used prior to 9-5/8" casing and 11.2 ppg in the overpressured section.)

15. OVERBURDEN GRADIENT CALCULATIONS AND PLOT



OVERBURDEN GRADIENT CALCULATIONS

=====

| DEPTH<br>from | DEPTH<br>to | AVR. BULK<br>DENSITY | O/BURDEN<br>INCR. | O/BURDEN<br>CUMM. | O/BURDEN<br>GRAD. | O/BURDEN<br>GRAD. |
|---------------|-------------|----------------------|-------------------|-------------------|-------------------|-------------------|
| feet          | feet        | gms/cc               | psi               | psi               | psi/ft            | ppg               |
| 0             | 71          | 1.02                 | 31.36             | 31.36             | 0.442             | 8.49              |
| 71            | 808         | 2.00                 | 638.24            | 669.60            | 0.829             | 15.94             |
| 808           | 975         | 2.30                 | 166.32            | 835.92            | 0.857             | 16.49             |
| 975           | 1010        | 2.38                 | 36.07             | 871.98            | 0.863             | 16.60             |
| 1010          | 1165        | 2.40                 | 161.08            | 1033.06           | 0.887             | 17.05             |
| 1165          | 1208        | 2.43                 | 45.24             | 1078.30           | 0.893             | 17.17             |
| 1208          | 1280        | 2.40                 | 74.82             | 1153.13           | 0.901             | 17.32             |
| 1280          | 1345        | 2.35                 | 66.14             | 1219.27           | 0.907             | 17.43             |
| 1345          | 1454        | 2.25                 | 106.19            | 1325.46           | 0.912             | 17.53             |
| 1454          | 1510        | 1.85                 | 44.86             | 1370.32           | 0.907             | 17.45             |
| 1510          | 1590        | 2.30                 | 79.67             | 1449.99           | 0.912             | 17.54             |
| 1590          | 1611        | 2.20                 | 20.00             | 1470.00           | 0.912             | 17.55             |
| 1611          | 1650        | 2.35                 | 39.68             | 1509.68           | 0.915             | 17.60             |
| 1650          | 1673        | 2.20                 | 21.91             | 1531.59           | 0.915             | 17.61             |
| 1673          | 1690        | 1.30                 | 9.57              | 1541.16           | 0.912             | 17.54             |
| 1690          | 1733        | 2.25                 | 41.89             | 1583.05           | 0.913             | 17.57             |
| 1733          | 1782        | 2.32                 | 49.22             | 1632.28           | 0.916             | 17.61             |
| 1782          | 1850        | 2.25                 | 66.25             | 1698.52           | 0.918             | 17.66             |
| 1850          | 1864        | 1.35                 | 8.18              | 1706.71           | 0.916             | 17.61             |
| 1864          | 1884        | 2.35                 | 20.35             | 1727.06           | 0.917             | 17.63             |
| 1884          | 1900        | 1.50                 | 10.39             | 1737.45           | 0.914             | 17.59             |
| 1900          | 1912        | 2.35                 | 12.21             | 1749.66           | 0.915             | 17.60             |
| 1912          | 1975        | 2.25                 | 61.38             | 1811.04           | 0.917             | 17.63             |
| 1975          | 2040        | 2.32                 | 65.30             | 1876.34           | 0.920             | 17.69             |
| 2040          | 2140        | 2.40                 | 103.92            | 1980.26           | 0.925             | 17.80             |
| 2140          | 2192        | 2.45                 | 55.16             | 2035.42           | 0.929             | 17.86             |
| 2192          | 2260        | 2.40                 | 70.67             | 2106.09           | 0.932             | 17.92             |
| 2260          | 2400        | 2.60                 | 157.61            | 2263.70           | 0.943             | 18.14             |
| 2400          | 2425        | 2.53                 | 27.39             | 2291.09           | 0.945             | 18.17             |
| 2425          | 2450        | 2.60                 | 28.15             | 2319.23           | 0.947             | 18.20             |
| 2450          | 2475        | 2.52                 | 27.28             | 2346.51           | 0.948             | 18.23             |
| 2475          | 2500        | 2.55                 | 27.60             | 2374.11           | 0.950             | 18.26             |
| 2500          | 2525        | 2.60                 | 28.15             | 2402.26           | 0.951             | 18.30             |
| 2525          | 2550        | 2.60                 | 28.15             | 2430.40           | 0.953             | 18.33             |
| 2550          | 2600        | 2.64                 | 57.16             | 2487.56           | 0.957             | 18.40             |
| 2600          | 2650        | 2.60                 | 56.29             | 2543.85           | 0.960             | 18.46             |
| 2650          | 2675        | 2.56                 | 27.71             | 2571.56           | 0.961             | 18.49             |
| 2675          | 2700        | 2.61                 | 28.25             | 2599.81           | 0.963             | 18.52             |
| 2700          | 2725        | 2.55                 | 27.60             | 2627.42           | 0.964             | 18.54             |
| 2725          | 2750        | 2.56                 | 27.71             | 2655.13           | 0.966             | 18.57             |
| 2750          | 2775        | 2.62                 | 28.36             | 2683.49           | 0.967             | 18.60             |
| 2775          | 2800        | 2.53                 | 27.39             | 2710.88           | 0.968             | 18.62             |
| 2800          | 2825        | 2.49                 | 26.95             | 2737.83           | 0.969             | 18.64             |
| 2825          | 2850        | 2.55                 | 27.60             | 2765.44           | 0.970             | 18.66             |
| 2850          | 2875        | 2.63                 | 28.47             | 2793.91           | 0.972             | 18.69             |
| 2875          | 2900        | 2.59                 | 28.04             | 2821.94           | 0.973             | 18.71             |
| 2900          | 2925        | 2.59                 | 28.04             | 2849.98           | 0.974             | 18.74             |
| 2925          | 2950        | 2.58                 | 27.93             | 2877.91           | 0.976             | 18.76             |
| 2950          | 2975        | 2.64                 | 28.58             | 2906.49           | 0.977             | 18.79             |
| 2975          | 3000        | 2.65                 | 28.69             | 2935.17           | 0.978             | 18.82             |

| DEPTH<br>from | DEPTH<br>to | AVR. BULK<br>DENSITY | O/BURDEN<br>INCR. | O/BURDEN<br>CUMM. | O/BURDEN<br>GRAD. | O/BURDEN<br>GRAD. |
|---------------|-------------|----------------------|-------------------|-------------------|-------------------|-------------------|
| feet          | feet        | gms/cc               | psi               | psi               | psi/ft            | ppg               |
| 3000          | 3025        | 2.65                 | 28.69             | 2963.86           | 0.980             | 18.84             |
| 3025          | 3040        | 2.66                 | 17.28             | 2981.14           | 0.981             | 18.86             |
| 3040          | 3060        | 2.52                 | 21.82             | 3002.96           | 0.981             | 18.87             |
| 3060          | 3085        | 2.60                 | 28.15             | 3031.10           | 0.983             | 18.89             |

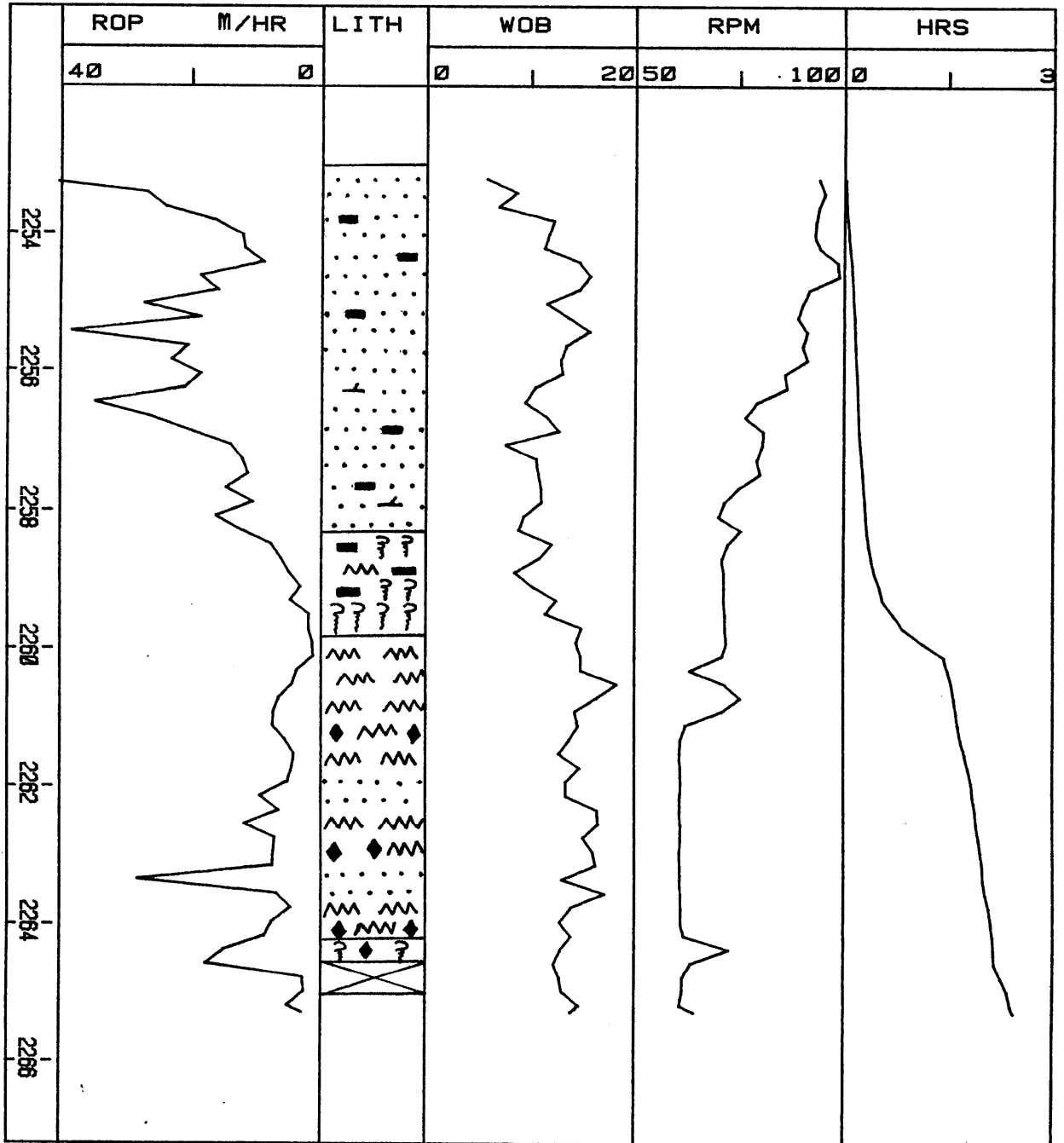
16. CORE-O-GRAPHS

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# CORE-O-GRAPH

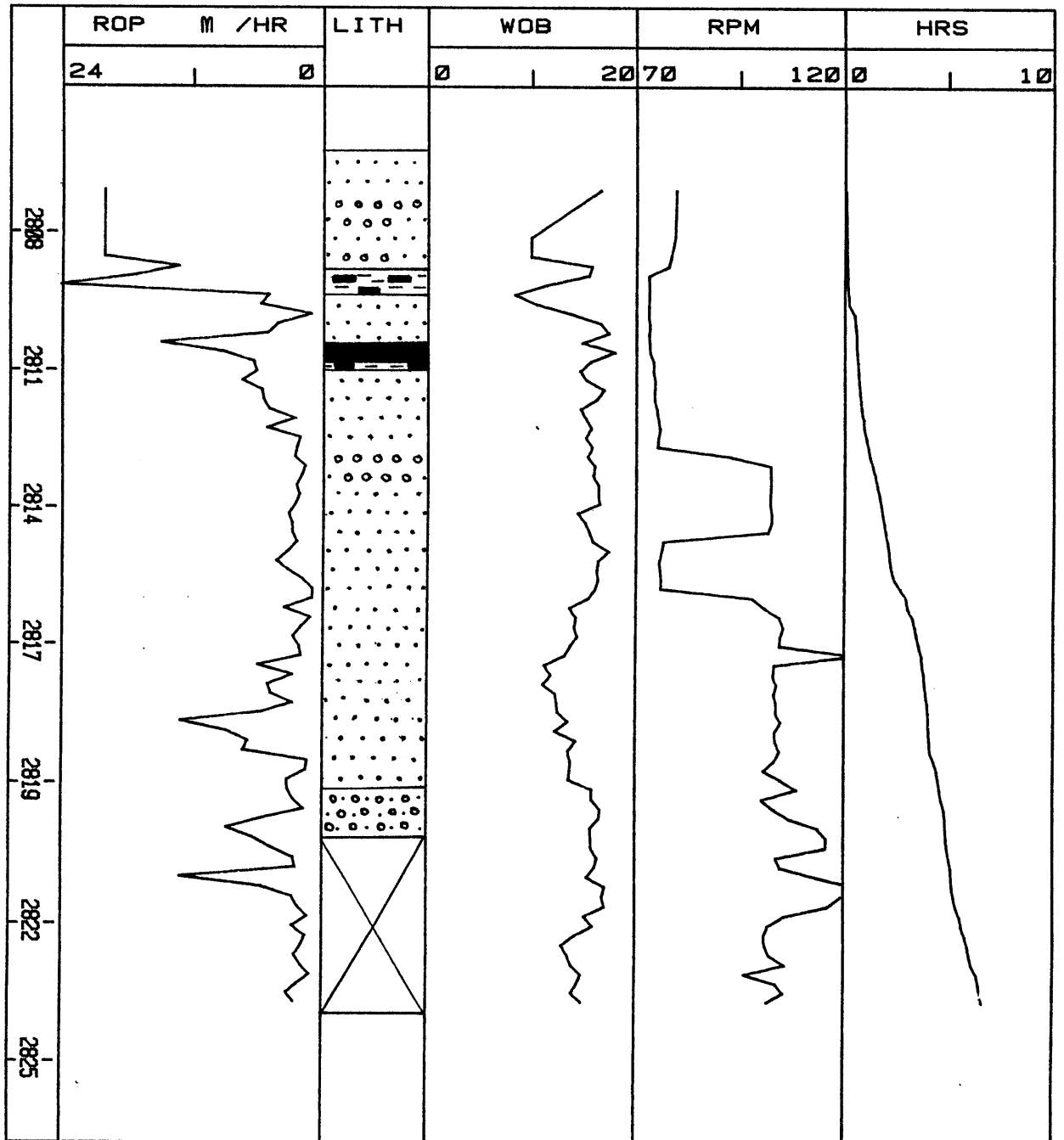
CLIENT: ESSO AUSTRALIA LTD.  
 WELL: WIRRAH #2  
 CORE NO.: 1  
 INTERVAL CORED FROM: 2253.0m. TO 2265.1m.  
 CUT: 12.1 m RECOVERED: 11.4m. ( 94.2% )  
 FORMATION: LATROBE GROUP  
 BIT MAKE & TYPE: CHRISTENSEN RC3  
 CORE BARREL SIZE: 6.75in. x 4.00in. x 19.66m.  
 BIT SIZE: 8.50 MUD WT.: 9.3



Jatimon '81

# CORE-O-GRAPH

CLIENT: ESSO AUSTRALIA LTD.  
 WELL: WIRRAH #2  
 CORE NO.: 2  
 INTERVAL CORED FROM 2806.3m. TO 2824.0m.  
 CUT: 17.7m RECOVERED: 14.1m. ( 79.7% )  
 FORMATION: LATROBE GROUP  
 BIT MAKE & TYPE: CHRISTENSEN C-20  
 CORE BARREL SIZE: 6.75in. x 4.00in. x 19.66m.  
 BIT SIZE: 8.47 MUD WT.: 9.4



Iatimer '81

17. SIDEWALL CORE GAS ANALYSES



## 18. GAS COMPOSITION ANALYSIS

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The composition of entrained reservoir gas in the mud is significant in determining the origin and the value of a show. Two graphical methods are employed for processing the mud gas chromatography results. These techniques however are empirical and by no means definitive.

### LOG PLOT

The ratios of C1/C2, C1/C3, C1/C4, C1/C5 and C1/C6 are plotted on three-cycle log paper for each hydrocarbon show. The plots can be evaluated by the following criteria :

1. Productive dry gas zones may show only C1, but abnormally high shows of C1 are usually indicative of saltwater.
2. A ratio of C1/C2 between approximately 2 and 15 indicates oil and between 15 and 65, gas. If the C1/C2 ratio is below about 2, or above about 65, the zone is probably non-productive.

The actual values of the gas/oil/water limits will vary from area to area.

3. If the C1/C2 ratio is low in the oil section and the C1/C4 ratio is high in the gas section, the zone is probably non-productive.
4. If any ratio (with the exception of C1/C5, if oil is used in the mud) is lower than the preceding ratio, the zone is probably non-productive.
5. The ratios may not be definitive for low permeability zones; however, steep ratio plots may indicate a tight zone.

### TRIANGULATION PLOT

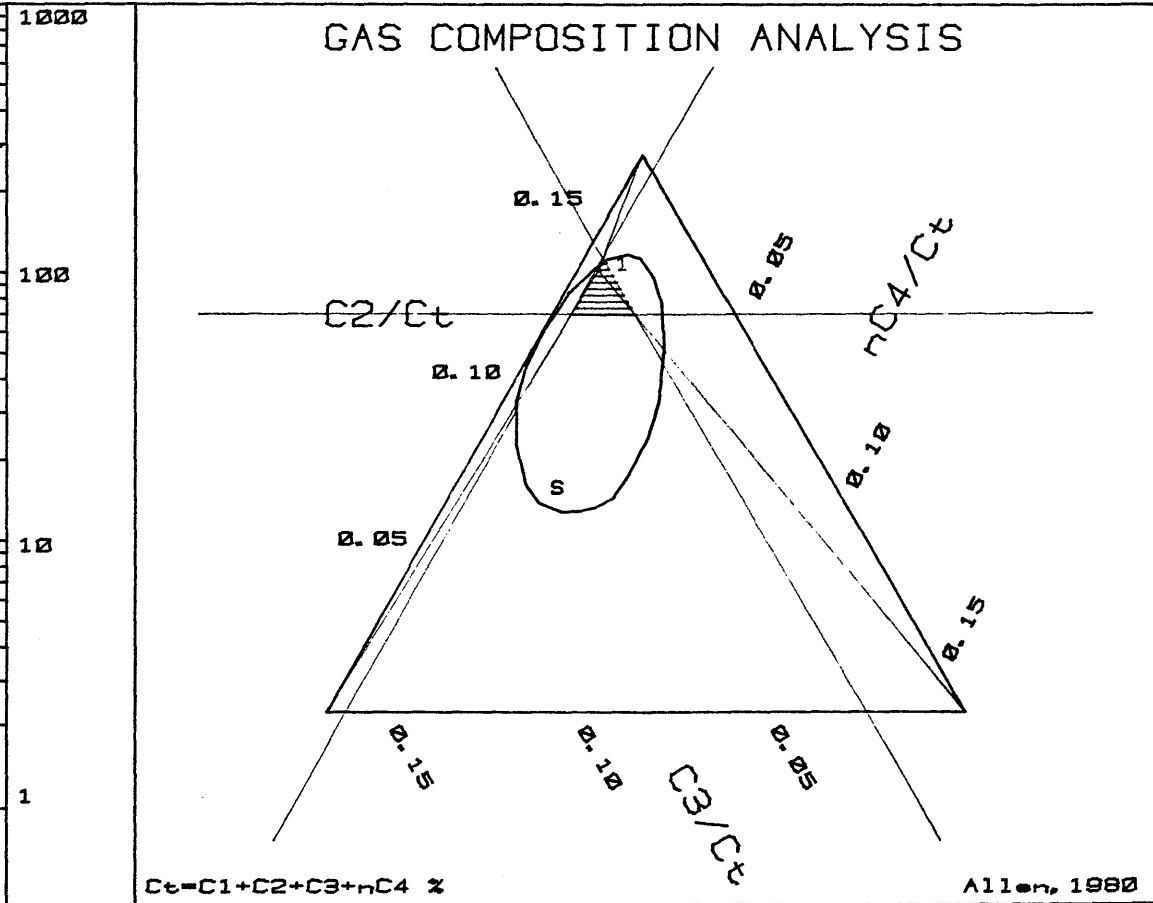
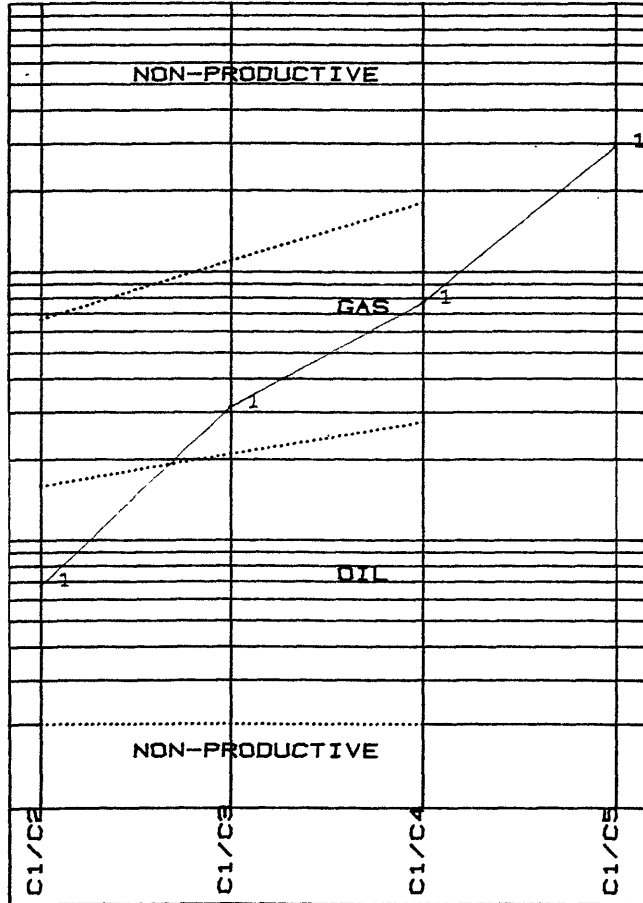
The triangular diagram is obtained by tracing lines on three scales at 120 degrees to each other, corresponding respectively to the ratios of C2, C3 and normal C4 to the total gas (C1 to nC4). The scales are arranged in such a way that if the apex of the triangle is upward, a gas zone is indicated, while if the apex points downward, an oil zone is suggested.

A large triangle plot represents dry gas or low GOR oil, while small triangles represent wet gases or high GOR oils. The homothetic centre of the plot should fall inside the top part of the triangle, otherwise the heavier hydrocarbon is abnormal and may indicate a dead show, (or coal gas).

CORE LAB. INTL. LTD.

Client: ESSO AUSTRALIA LTD.

Well: WIRRAH # 2



$C_t = C_1 + C_2 + C_3 + nC_4 \%$

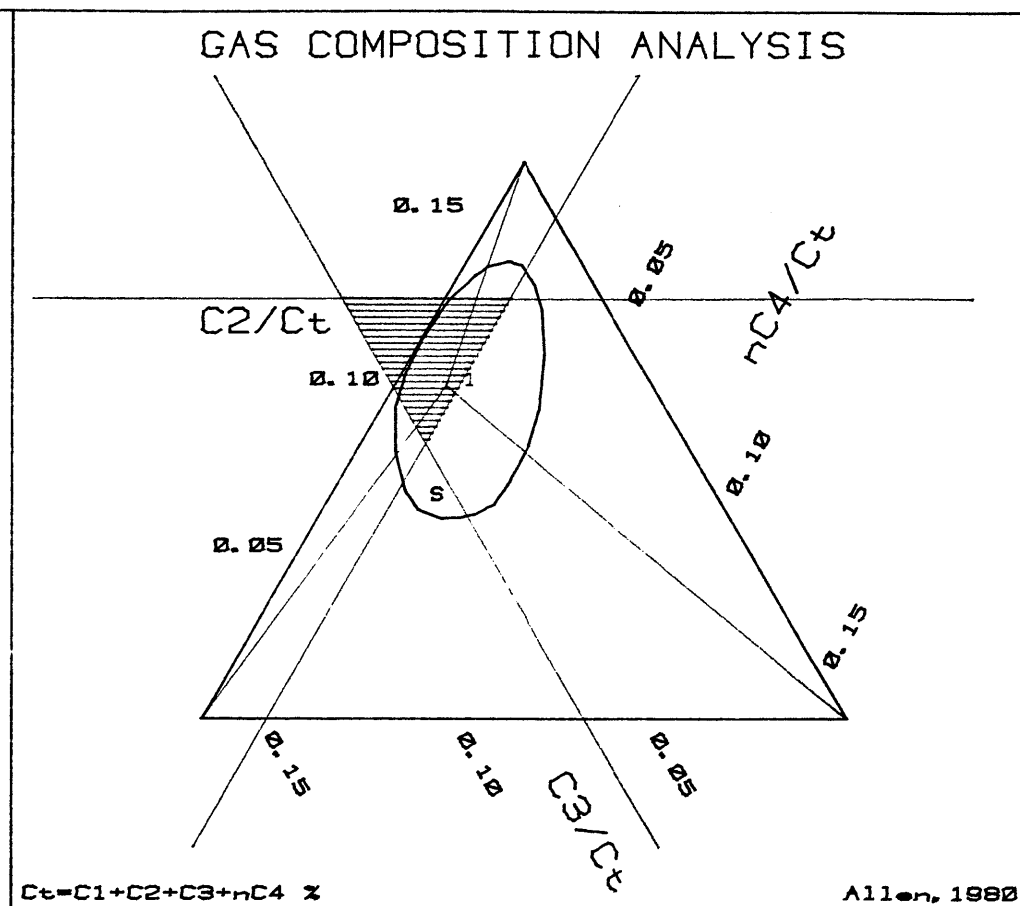
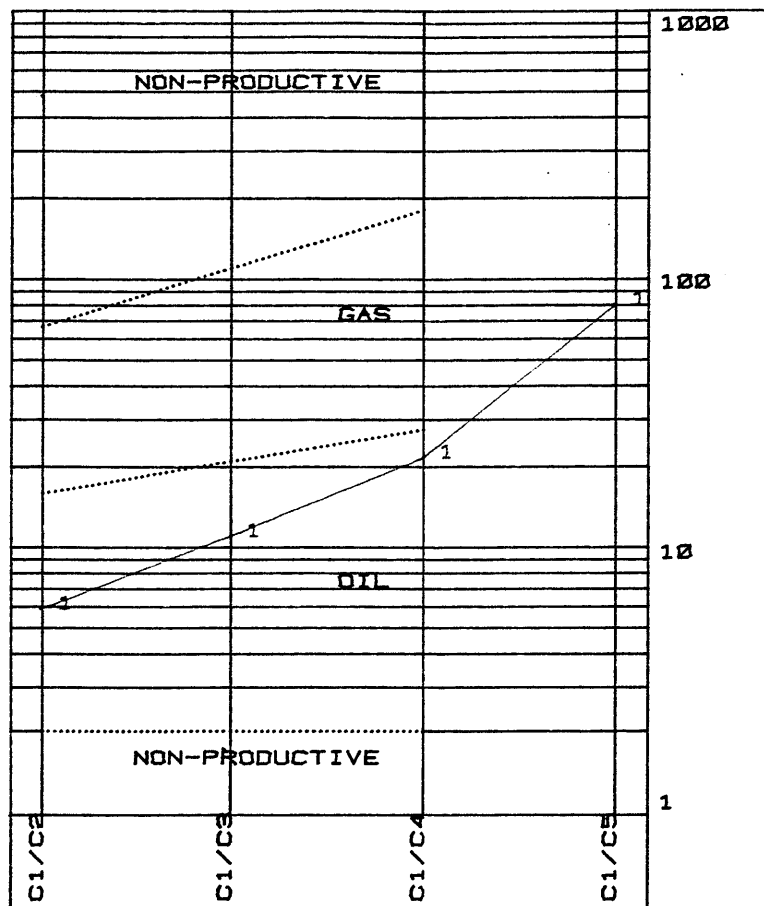
Allen, 1980

| NO. | DEPTH | C1    | C2    | C3    | iC4   | nC4   | C5    | C6 %  | Ct     | C1/C2 | C1/C3 | C1/C4 | C1/C5 |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|
| 1   | 1527  | 9.038 | 1.340 | 0.289 | 0.059 | 0.059 | 0.031 | 0.017 | 10.726 | 7     | 31    | 77    | 293   |

CORE LAB. INTL. LTD.

Client: ESSO AUSTRALIA LTD.

Well: WIRRAH # 2



| NO. | DEPTH | C1    | C2    | C3    | iC4   | nC4   | C5    | C6 %  | Ct    | C1/C2 | C1/C3 | C1/C4 | C1/C5 |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1   | 1604  | 0.578 | 0.098 | 0.052 | 0.013 | 0.013 | 0.007 | 0.002 | 0.742 | 6     | 11    | 22    | 80    |

## COMPUTER DATA LISTINGS

Data is read by the computer while drilling is in progress, using the on-line Drill program and is stored on the tape at 10, 1, or 0.2m intervals. This data is then available at a later date for use in other programs (for example, KICK, SURGE, COST, OPTBIT and HYDRL).

The data can also be accessed by the REPORT program, which allows the operator to list both raw and calculated data in various formats. Either detailed data or data averaged over any particular depth interval, may be listed.

In addition, the data may be plotted in various formats, at any scale the operator desires.

The following data lists have been made for this well :

- a. Bit record & Bit initialization data
- b. Hydraulic analyses
- c. Data list A
- d. Data list B
- e. Data list C
- f. Data list

## COMPUTER PLOTS

Using the REPORT program, the following plots have been drawn for this well :

GEO PLOT - 1:5000 SCALE - 2m average

Since all the data is stored on tape, further data lists or plots are available at any time on request.





WELL: WIRRAH NO.2

BIT RECORD

| BIT IADC<br>No. CODE MAKE & TYPE | SIZE   | COST    | NOZZLES  | DEPTH<br>IN | DEPTH<br>OUT | BIT<br>RUN | TOTAL<br>HOURS | TRIP<br>AROP TIME | CCOST       | TOTAL<br>TURNS | CONDITION<br>T B G |
|----------------------------------|--------|---------|----------|-------------|--------------|------------|----------------|-------------------|-------------|----------------|--------------------|
| 1 111 HTC OSC3AJ&26"HD           | 26.000 | 0.00    | 20 20 20 | 71.0        | 208.0        | 137.0      | 2.04           | 67.2 2.4          | 177.44      | 15736          | 3 4 0.000          |
| 2 111 HTC OSC 3AJ                | 17.500 | 4442.00 | 18 18 18 | 208.0       | 825.0        | 617.0      | 12.57          | 49.1 3.7          | 151.57      | 107714         | 2 2 0.000          |
| 3 114 HTC X3A                    | 12.250 | 2201.00 | 16 16 16 | 825.0       | 1271.0       | 446.0      | 18.77          | 23.8 4.7          | 293.05      | 166290         | 6 8 0.063          |
| 4 114 HTC X3A                    | 12.250 | 2201.00 | 16 16 16 | 1271.0      | 1624.0       | 353.0      | 15.10          | 23.4 5.4          | 324.19      | 122032         | 8 8 1.500          |
| 5 517 HTC J22                    | 12.250 | 6788.00 | 16 16 16 | 1624.0      | 1626.0       | 2.0        | 1.66           | 1.2               | 5.422720.75 | 6146           | 8 2 0.125          |
| 6 316 HTC J7                     | 12.250 | 1761.00 | 16 16 16 | 1626.0      | 1663.0       | 37.0       | 3.99           | 9.3               | 5.5 1451.86 | 26591          | 5 2 0.375          |
| 7 517 HTC J22                    | 12.250 | 6788.00 | 16 16 16 | 1663.0      | 2058.0       | 395.0      | 46.42          | 8.5               | 6.4 749.31  | 174195         | 4 3 0.125          |
| 8 517 HTC J22                    | 12.250 | 6788.00 | 16 16 16 | 2058.0      | 2253.0       | 195.0      | 26.10          | 7.5               | 6.8 958.54  | 89647          | 2 2 0.000          |
| 8 4 CHRIS RC3                    | 8.500  | 0.00    | 15 15 14 | 2253.0      | 2265.1       | 12.1       | 2.42           | 5.0               | 6.8 4171.86 | 10122          | 0 0 0.700          |
| 9 517 HTC J22                    | 12.250 | 6788.00 | 16 16 16 | 2265.1      | 2450.0       | 184.9      | 38.89          | 4.8               | 7.2 1401.46 | 125062         | 3 4 0.125          |
| 10 517 HTC J22                   | 12.250 | 6788.00 | 15 15 16 | 2450.0      | 2678.0       | 228.0      | 50.23          | 4.5               | 7.3 1411.25 | 192705         | 6 4 0.250          |
| 11 537 HTC J33                   | 12.250 | 6637.00 | 16 16 16 | 2678.0      | 2683.5       | 5.5        | 0.97           | 5.7               | 7.5 9638.23 | 2075           | 1 1 0.000          |
| 11 537 HTC J33                   | 12.250 | 0.00    | 16 16 16 | 2683.5      | 2767.7       | 84.2       | 28.25          | 3.1               | 7.7 2337.60 | 96616          | 8 4 0.250          |

WELL: WIRRAH NO.2

BIT RECORD

| BIT IADC<br>No. CODE MAKE & TYPE | SIZE   | COST     | NOZZLES  | DEPTH<br>IN | DEPTH<br>OUT | BIT<br>RUN | TOTAL<br>HOURS | TRIP<br>AROP TIME | CCOST       | TOTAL<br>TURNS | CONDITION<br>T B G |
|----------------------------------|--------|----------|----------|-------------|--------------|------------|----------------|-------------------|-------------|----------------|--------------------|
| 12 617 HTC J44                   | 12.250 | 4919.00  | 16 16 16 | 2767.7      | 2806.3       | 38.6       | 6.93           | 5.6               | 7.8 2216.73 | 18538          | 1 1 0.000          |
| 12 4 CHRIS C-20                  | 8.469  | 16085.00 | 14 14 13 | 2806.3      | 2824.0       | 17.7       | 6.66           | 2.7               | 8.0 5443.42 | 38355          | 0 0 0.100          |
| 13 537 HTC J33                   | 12.250 | 6637.00  | 16 16 16 | 2824.0      | 2953.4       | 129.4      | 28.13          | 4.6               | 8.3 1592.67 | 90901          | 3 4 0.063          |
| 14 537 HTC J33                   | 12.250 | 6637.00  | 16 16 18 | 2953.4      | 3085.0       | 131.6      | 34.10          | 3.9               | 8.5 1822.74 | 111908         | 3 4 0.125          |

BIT NUMBER: 1 IADC CODE 111 HTC OSC3AJ&26"HO

|                                    |        |         |         |
|------------------------------------|--------|---------|---------|
| STARTING DEPTH.....                | 71.0   |         |         |
| BIT COST, RIG COST/HOUR.....       | 0.00   | 5475.00 |         |
| TRIP TIME.....                     | 2.4    |         |         |
| BIT DIAMETER.....                  | 26.000 |         |         |
| NOZZLES.....                       | 20     | 20      | 20      |
| HW DRILL COLLAR LENGTH, OD, ID.... | 23.34  | 9.750   | 3.062   |
| DRILL COLLAR LENGTH, OD, ID.....   | 39.45  | 8.000   | 2.813   |
| HW DRILL PIPE LENGTH, OD, ID.....  | 91.00  | 5.000   | 3.125   |
| DRILL PIPE OD, ID.....             |        | 5.000   | 4.276   |
| CASING DEPTH, ID.....              | 0.00   | 0.000   |         |
| PUMP VOLUMES 1 AND 2.....          | 0.117  | 0.117   |         |
| PORE PRESSURE CALC EXPONENT.....   | 1.20   |         |         |
| NORMAL PORE PRESSURE.....          | 8.4    |         |         |
| OVERBURDEN GRADIENT MODIFIER.....  | 0.00   |         |         |
| STRESS RATIO MODIFIER.....         | 0.50   |         |         |
| "d" EXPONENT CORRECTION FACTOR.... | 10.0   |         |         |
| CUTTINGS DIAMETER, DENSITY.....    | 4.0    | 2.00    |         |
| FINISHING DEPTH.....               | 208.0  |         |         |
| CUMULATIVE HOURS, TURNS.....       | 2.04   | 15736   |         |
| BIT CONDITION OUT.....             | T 3    | B 4     | G 0.000 |

BIT NUMBER: 2 IADC CODE 111 HTC OSC 3AJ

|                                    |         |         |         |
|------------------------------------|---------|---------|---------|
| STARTING DEPTH.....                | 208.0   |         |         |
| BIT COST, RIG COST/HOUR.....       | 4442.00 | 5475.00 |         |
| TRIP TIME.....                     | 3.7     |         |         |
| BIT DIAMETER.....                  | 17.500  |         |         |
| NOZZLES.....                       | 18      | 18      | 18      |
| HW DRILL COLLAR LENGTH, OD, ID.... | 21.51   | 9.750   | 3.062   |
| DRILL COLLAR LENGTH, OD, ID.....   | 96.65   | 8.000   | 2.813   |
| HW DRILL PIPE LENGTH, OD, ID.....  | 79.57   | 5.000   | 3.125   |
| DRILL PIPE OD, ID.....             |         | 5.000   | 4.276   |
| CASING DEPTH, ID.....              | 193.50  | 19.124  |         |
| RISER LENGTH, ID.....              | 71.00   | 21.000  |         |
| PUMP VOLUMES 1 AND 2.....          | 0.117   | 0.117   |         |
| PORE PRESSURE CALC EXPONENT.....   | 1.20    |         |         |
| NORMAL PORE PRESSURE.....          | 8.4     |         |         |
| OVERBURDEN GRADIENT MODIFIER.....  | 0.00    |         |         |
| STRESS RATIO MODIFIER.....         | 0.50    |         |         |
| "d" EXPONENT CORRECTION FACTOR.... | 10.0    |         |         |
| CUTTINGS DIAMETER, DENSITY.....    | 3.5     | 2.10    |         |
| FINISHING DEPTH.....               | 825.0   |         |         |
| CUMULATIVE HOURS, TURNS.....       | 12.57   | 107714  |         |
| BIT CONDITION OUT.....             | T 2     | B 2     | G 0.000 |

BIT NUMBER: 3 IADC CODE 114 HTC X3A

|                                     |         |         |         |
|-------------------------------------|---------|---------|---------|
| STARTING DEPTH.....                 | 825.0   |         |         |
| BIT COST, RIG COST/HOUR.....        | 2201.00 | 5475.00 |         |
| TRIP TIME.....                      | 4.7     |         |         |
| BIT DIAMETER.....                   | 12.250  |         |         |
| NOZZLES.....                        | 16      | 16      | 16      |
| DRILL COLLAR LENGTH, OD, ID.....    | 147.02  | 8.000   | 2.813   |
| HW DRILL PIPE LENGTH, OD, ID.....   | 79.57   | 5.000   | 3.125   |
| DRILL PIPE OD, ID.....              |         | 5.000   | 4.276   |
| CASING DEPTH, ID.....               | 808.00  | 12.615  |         |
| RISER LENGTH, ID.....               | 71.00   | 21.000  |         |
| PUMP VOLUMES 1 AND 2.....           | 0.117   | 0.117   |         |
| PORE PRESSURE CALC EXPONENT.....    | 1.20    |         |         |
| NORMAL PORE PRESSURE.....           | 8.4     |         |         |
| OVERBURDEN GRADIENT MODIFIER.....   | 0.00    |         |         |
| STRESS RATIO MODIFIER.....          | 0.50    |         |         |
| "d" EXPONENT CORRECTION FACTOR..... | 10.0    |         |         |
| CUTTINGS DIAMETER, DENSITY.....     | 3.0     | 2.20    |         |
| FINISHING DEPTH.....                | 1271.0  |         |         |
| CUMULATIVE HOURS, TURNS.....        | 18.77   | 166290  |         |
| BIT CONDITION OUT.....              | T 6     | B 8     | G 0.063 |

BIT NUMBER: 4 IADC CODE 114 HTC X3A

|                                     |         |         |         |
|-------------------------------------|---------|---------|---------|
| STARTING DEPTH.....                 | 1271.0  |         |         |
| BIT COST, RIG COST/HOUR.....        | 2201.00 | 5475.00 |         |
| TRIP TIME.....                      | 5.4     |         |         |
| BIT DIAMETER.....                   | 12.250  |         |         |
| NOZZLES.....                        | 16      | 16      | 16      |
| DRILL COLLAR LENGTH, OD, ID.....    | 147.02  | 8.000   | 2.813   |
| HW DRILL PIPE LENGTH, OD, ID.....   | 79.57   | 5.000   | 3.125   |
| DRILL PIPE OD, ID.....              |         | 5.000   | 4.276   |
| CASING DEPTH, ID.....               | 808.00  | 12.615  |         |
| RISER LENGTH, ID.....               | 71.00   | 21.000  |         |
| PUMP VOLUMES 1 AND 2.....           | 0.117   | 0.117   |         |
| PORE PRESSURE CALC EXPONENT.....    | 1.20    |         |         |
| NORMAL PORE PRESSURE.....           | 8.4     |         |         |
| OVERBURDEN GRADIENT MODIFIER.....   | 0.00    |         |         |
| STRESS RATIO MODIFIER.....          | 0.50    |         |         |
| "d" EXPONENT CORRECTION FACTOR..... | 10.0    |         |         |
| CUTTINGS DIAMETER, DENSITY.....     | 3.0     | 2.20    |         |
| FINISHING DEPTH.....                | 1624.0  |         |         |
| CUMULATIVE HOURS, TURNS.....        | 15.10   | 122032  |         |
| BIT CONDITION OUT.....              | T 8     | B 8     | G 1.500 |

BIT NUMBER: 5 IADC CODE 517 HTC J22

|                                    |         |         |         |
|------------------------------------|---------|---------|---------|
| STARTING DEPTH.....                | 1624.0  |         |         |
| BIT COST, RIG COST/HOUR.....       | 6788.00 | 5475.00 |         |
| TRIP TIME.....                     | 5.4     |         |         |
| BIT DIAMETER.....                  | 12.250  |         |         |
| NOZZLES.....                       | 16      | 16      | 16      |
| DRILL COLLAR LENGTH, OD, ID.....   | 151.11  | 8.000   | 2.813   |
| HW DRILL PIPE LENGTH, OD, ID.....  | 79.57   | 5.000   | 3.125   |
| DRILL PIPE OD, ID.....             |         | 5.000   | 4.276   |
| CASING DEPTH, ID.....              | 808.00  | 12.615  |         |
| RISER LENGTH, ID.....              | 71.00   | 21.000  |         |
| PUMP VOLUMES 1 AND 2.....          | 0.117   | 0.117   |         |
| PORE PRESSURE CALC EXPONENT.....   | 1.20    |         |         |
| NORMAL PORE PRESSURE.....          | 8.4     |         |         |
| OVERBURDEN GRADIENT MODIFIER.....  | 0.00    |         |         |
| STRESS RATIO MODIFIER.....         | 0.50    |         |         |
| "d" EXPONENT CORRECTION FACTOR.... | 10.0    |         |         |
| CUTTINGS DIAMETER, DENSITY.....    | 3.0     | 2.25    |         |
| FINISHING DEPTH.....               | 1626.0  |         |         |
| CUMULATIVE HOURS, TURNS.....       | 1.66    | 6146    |         |
| BIT CONDITION OUT.....             | T 8     | B 2     | G 0.125 |

BIT NUMBER: 6 IADC CODE 316 HTC J7

|                                    |         |         |         |
|------------------------------------|---------|---------|---------|
| STARTING DEPTH.....                | 1626.0  |         |         |
| BIT COST, RIG COST/HOUR.....       | 1761.00 | 5475.00 |         |
| TRIP TIME.....                     | 5.5     |         |         |
| BIT DIAMETER.....                  | 12.250  |         |         |
| NOZZLES.....                       | 16      | 16      | 16      |
| DRILL COLLAR LENGTH, OD, ID.....   | 151.11  | 8.000   | 2.813   |
| HW DRILL PIPE LENGTH, OD, ID.....  | 79.57   | 5.000   | 3.125   |
| DRILL PIPE OD, ID.....             |         | 5.000   | 4.276   |
| CASING DEPTH, ID.....              | 808.00  | 12.615  |         |
| RISER LENGTH, ID.....              | 71.00   | 21.000  |         |
| PUMP VOLUMES 1 AND 2.....          | 0.117   | 0.117   |         |
| PORE PRESSURE CALC EXPONENT.....   | 1.20    |         |         |
| NORMAL PORE PRESSURE.....          | 8.4     |         |         |
| OVERBURDEN GRADIENT MODIFIER.....  | 0.00    |         |         |
| STRESS RATIO MODIFIER.....         | 0.50    |         |         |
| "d" EXPONENT CORRECTION FACTOR.... | 10.0    |         |         |
| CUTTINGS DIAMETER, DENSITY.....    | 3.0     | 2.30    |         |
| FINISHING DEPTH.....               | 1663.0  |         |         |
| CUMULATIVE HOURS, TURNS.....       | 3.99    | 26591   |         |
| BIT CONDITION OUT.....             | T 5     | B 2     | G 0.375 |

|                                     |         |           |     |         |  |         |  |
|-------------------------------------|---------|-----------|-----|---------|--|---------|--|
| BIT NUMBER:                         | 7       | IADC CODE | 517 | HTC J22 |  |         |  |
| STARTING DEPTH.....                 | 1663.0  |           |     |         |  |         |  |
| BIT COST, RIG COST/HOUR.....        | 6788.00 | 5475.00   |     |         |  |         |  |
| TRIP TIME.....                      | 6.4     |           |     |         |  |         |  |
| BIT DIAMETER.....                   | 12.250  |           |     |         |  |         |  |
| NOZZLES.....                        | 16      | 16        |     |         |  | 16      |  |
| DRILL COLLAR LENGTH, OD, ID.....    | 151.11  | 8.000     |     |         |  | 2.813   |  |
| HW DRILL PIPE LENGTH, OD, ID.....   | 79.57   | 5.000     |     |         |  | 3.125   |  |
| DRILL PIPE OD, ID.....              |         | 5.000     |     |         |  | 4.276   |  |
| CASING DEPTH, ID.....               | 808.00  | 12.615    |     |         |  |         |  |
| RISER LENGTH, ID.....               | 71.00   | 21.000    |     |         |  |         |  |
| PUMP VOLUMES 1 AND 2.....           | 0.117   | 0.117     |     |         |  |         |  |
| PORE PRESSURE CALC EXPONENT.....    | 1.20    |           |     |         |  |         |  |
| NORMAL PORE PRESSURE.....           | 8.4     |           |     |         |  |         |  |
| OVERBURDEN GRADIENT MODIFIER.....   | 0.00    |           |     |         |  |         |  |
| STRESS RATIO MODIFIER.....          | 0.50    |           |     |         |  |         |  |
| "d" EXPONENT CORRECTION FACTOR..... | 10.0    |           |     |         |  |         |  |
| CUTTINGS DIAMETER, DENSITY.....     | 3.0     | 2.30      |     |         |  |         |  |
| FINISHING DEPTH.....                | 2058.0  |           |     |         |  |         |  |
| CUMULATIVE HOURS, TURNS.....        | 46.42   | 174195    |     |         |  |         |  |
| BIT CONDITION OUT.....              | T 4     | B 3       |     |         |  | G 0.125 |  |

|                                     |         |           |     |         |  |         |  |
|-------------------------------------|---------|-----------|-----|---------|--|---------|--|
| BIT NUMBER:                         | 8       | IADC CODE | 517 | HTC J22 |  |         |  |
| STARTING DEPTH.....                 | 2058.0  |           |     |         |  |         |  |
| BIT COST, RIG COST/HOUR.....        | 6788.00 | 5475.00   |     |         |  |         |  |
| TRIP TIME.....                      | 6.8     |           |     |         |  |         |  |
| BIT DIAMETER.....                   | 12.250  |           |     |         |  |         |  |
| NOZZLES.....                        | 16      | 16        |     |         |  | 16      |  |
| DRILL COLLAR LENGTH, OD, ID.....    | 151.11  | 8.000     |     |         |  | 2.813   |  |
| HW DRILL PIPE LENGTH, OD, ID.....   | 79.57   | 5.000     |     |         |  | 3.125   |  |
| DRILL PIPE OD, ID.....              |         | 5.000     |     |         |  | 4.276   |  |
| CASING DEPTH, ID.....               | 808.00  | 12.615    |     |         |  |         |  |
| RISER LENGTH, ID.....               | 71.00   | 21.000    |     |         |  |         |  |
| PUMP VOLUMES 1 AND 2.....           | 0.117   | 0.117     |     |         |  |         |  |
| PORE PRESSURE CALC EXPONENT.....    | 1.20    |           |     |         |  |         |  |
| NORMAL PORE PRESSURE.....           | 8.4     |           |     |         |  |         |  |
| OVERBURDEN GRADIENT MODIFIER.....   | 0.00    |           |     |         |  |         |  |
| STRESS RATIO MODIFIER.....          | 0.50    |           |     |         |  |         |  |
| "d" EXPONENT CORRECTION FACTOR..... | 10.0    |           |     |         |  |         |  |
| CUTTINGS DIAMETER, DENSITY.....     | 3.0     | 2.40      |     |         |  |         |  |
| FINISHING DEPTH.....                | 2253.0  |           |     |         |  |         |  |
| CUMULATIVE HOURS, TURNS.....        | 26.10   | 89647     |     |         |  |         |  |
| BIT CONDITION OUT.....              | T 2     | B 2       |     |         |  | G 0.000 |  |

BIT NUMBER: 8 IADC CODE 4 CHRIS RC3

|                                     |        |         |         |
|-------------------------------------|--------|---------|---------|
| STARTING DEPTH.....                 | 2253.0 |         |         |
| BIT COST, RIG COST/HOUR.....        | 0.00   | 5475.00 |         |
| TRIP TIME.....                      | 6.8    |         |         |
| BIT DIAMETER.....                   | 8.500  |         |         |
| NOZZLES.....                        | 15     | 15      | 14      |
| DRILL COLLAR LENGTH, OD, ID.....    | 136.70 | 8.000   | 2.813   |
| HW DRILL PIPE LENGTH, OD, ID.....   | 79.57  | 5.000   | 3.125   |
| DRILL PIPE OD, ID.....              |        | 5.000   | 4.276   |
| CASING DEPTH, ID.....               | 808.00 | 12.615  |         |
| RISER LENGTH, ID.....               | 71.00  | 21.000  |         |
| PUMP VOLUMES 1 AND 2.....           | 0.117  | 0.117   |         |
| PORE PRESSURE CALC EXPONENT.....    | 1.20   |         |         |
| NORMAL PORE PRESSURE.....           | 8.4    |         |         |
| OVERBURDEN GRADIENT MODIFIER.....   | 0.00   |         |         |
| STRESS RATIO MODIFIER.....          | 0.50   |         |         |
| "d" EXPONENT CORRECTION FACTOR..... | 10.0   |         |         |
| CUTTINGS DIAMETER, DENSITY.....     | 2.0    | 2.45    |         |
| FINISHING DEPTH.....                | 2265.1 |         |         |
| CUMULATIVE HOURS, TURNS.....        | 2.42   | 10122   |         |
| BIT CONDITION OUT.....              | T 0    | B 0     | G 0.700 |

BIT NUMBER: 9 IADC CODE 517 HTC J22

|                                     |         |         |         |
|-------------------------------------|---------|---------|---------|
| STARTING DEPTH.....                 | 2265.1  |         |         |
| BIT COST, RIG COST/HOUR.....        | 6788.00 | 5475.00 |         |
| TRIP TIME.....                      | 7.2     |         |         |
| BIT DIAMETER.....                   | 12.250  |         |         |
| NOZZLES.....                        | 16      | 16      | 16      |
| DRILL COLLAR LENGTH, OD, ID.....    | 151.11  | 8.000   | 2.813   |
| HW DRILL PIPE LENGTH, OD, ID.....   | 79.57   | 5.000   | 3.125   |
| DRILL PIPE OD, ID.....              |         | 5.000   | 4.276   |
| CASING DEPTH, ID.....               | 808.00  | 12.615  |         |
| RISER LENGTH, ID.....               | 71.00   | 21.000  |         |
| PUMP VOLUMES 1 AND 2.....           | 0.117   | 0.117   |         |
| PORE PRESSURE CALC EXPONENT.....    | 1.20    |         |         |
| NORMAL PORE PRESSURE.....           | 8.4     |         |         |
| OVERBURDEN GRADIENT MODIFIER.....   | 0.00    |         |         |
| STRESS RATIO MODIFIER.....          | 0.50    |         |         |
| "d" EXPONENT CORRECTION FACTOR..... | 10.0    |         |         |
| CUTTINGS DIAMETER, DENSITY.....     | 2.5     | 2.45    |         |
| FINISHING DEPTH.....                | 2450.0  |         |         |
| CUMULATIVE HOURS, TURNS.....        | 38.89   | 125062  |         |
| BIT CONDITION OUT.....              | T 3     | B 4     | G 0.125 |

BIT NUMBER: 10 IADC CODE 517 HTC J22

|                                     |         |         |         |
|-------------------------------------|---------|---------|---------|
| STARTING DEPTH.....                 | 2450.0  |         |         |
| BIT COST, RIG COST/HOUR.....        | 6788.00 | 5475.00 |         |
| TRIP TIME.....                      | 7.3     |         |         |
| BIT DIAMETER.....                   | 12.250  |         |         |
| NOZZLES.....                        | 15      | 15      | 16      |
| DRILL COLLAR LENGTH, OD, ID.....    | 178.14  | 8.000   | 2.813   |
| HW DRILL PIPE LENGTH, OD, ID.....   | 80.96   | 5.000   | 3.125   |
| DRILL PIPE OD, ID.....              |         | 5.000   | 4.276   |
| CASING DEPTH, ID.....               | 808.00  | 12.615  |         |
| RISER LENGTH, ID.....               | 71.00   | 21.000  |         |
| PUMP VOLUMES 1 AND 2.....           | 0.117   | 0.117   |         |
| PORE PRESSURE CALC EXPONENT.....    | 1.20    |         |         |
| NORMAL PORE PRESSURE.....           | 8.7     |         |         |
| OVERBURDEN GRADIENT MODIFIER.....   | 0.00    |         |         |
| STRESS RATIO MODIFIER.....          | 0.50    |         |         |
| "d" EXPONENT CORRECTION FACTOR..... | 10.0    |         |         |
| CUTTINGS DIAMETER, DENSITY.....     | 2.5     | 2.60    |         |
| FINISHING DEPTH.....                | 2631.6  |         |         |
| CUMULATIVE HOURS, TURNS.....        | 50.23   | 192705  |         |
| BIT CONDITION OUT.....              | T 6     | B 4     | G 0.250 |

BIT NUMBER: 11 IADC CODE 537 HTC J33

|                                     |         |         |         |
|-------------------------------------|---------|---------|---------|
| STARTING DEPTH.....                 | 2678.0  |         |         |
| BIT COST, RIG COST/HOUR.....        | 6637.00 | 5475.00 |         |
| TRIP TIME.....                      | 7.5     |         |         |
| BIT DIAMETER.....                   | 12.250  |         |         |
| NOZZLES.....                        | 16      | 16      | 16      |
| DRILL COLLAR LENGTH, OD, ID.....    | 178.14  | 8.000   | 2.813   |
| HW DRILL PIPE LENGTH, OD, ID.....   | 80.96   | 5.000   | 3.125   |
| DRILL PIPE OD, ID.....              |         | 5.000   | 4.276   |
| CASING DEPTH, ID.....               | 808.00  | 12.615  |         |
| RISER LENGTH, ID.....               | 71.00   | 21.000  |         |
| PUMP VOLUMES 1 AND 2.....           | 0.117   | 0.117   |         |
| PORE PRESSURE CALC EXPONENT.....    | 1.20    |         |         |
| NORMAL PORE PRESSURE.....           | 8.7     |         |         |
| OVERBURDEN GRADIENT MODIFIER.....   | 0.00    |         |         |
| STRESS RATIO MODIFIER.....          | 0.50    |         |         |
| "d" EXPONENT CORRECTION FACTOR..... | 10.0    |         |         |
| CUTTINGS DIAMETER, DENSITY.....     | 2.5     | 2.60    |         |
| FINISHING DEPTH.....                | 2683.5  |         |         |
| CUMULATIVE HOURS, TURNS.....        | 0.97    | 2075    |         |
| BIT CONDITION OUT.....              | T 1     | B 1     | G 0.000 |



RJT NUMBER: 11 IADC CODE 537 HTC J33

|                                    |        |         |         |
|------------------------------------|--------|---------|---------|
| STARTING DEPTH.....                | 2683.5 |         |         |
| BIT COST, RIG COST/HOUR.....       | 0.00   | 5475.00 |         |
| TRIP TIME.....                     | 7.7    |         |         |
| PREVIOUS HOLE MADE.....            | 0.0    |         |         |
| PREVIOUS HOURS, TURNS.....         | 0.97   | 2075    |         |
| BIT DIAMETER.....                  | 12.250 |         |         |
| NOZZLES.....                       | 16     | 16      | 16      |
| DRILL COLLAR LENGTH, OD, ID.....   | 177.43 | 8.000   | 2.813   |
| HW DRILL PIPE LENGTH, OD, ID.....  | 80.96  | 5.000   | 3.125   |
| DRILL PIPE OD, ID.....             |        | 5.000   | 4.276   |
| CASING DEPTH, ID.....              | 808.00 | 12.615  |         |
| RISER LENGTH, ID.....              | 71.00  | 21.000  |         |
| PUMP VOLUMES 1 AND 2.....          | 0.117  | 0.117   |         |
| PORE PRESSURE CALC EXPONENT.....   | 1.20   |         |         |
| NORMAL PORE PRESSURE.....          | 8.7    |         |         |
| OVERBURDEN GRADIENT MODIFIER.....  | 0.00   |         |         |
| STRESS RATIO MODIFIER.....         | 0.50   |         |         |
| "d" EXPONENT CORRECTION FACTOR.... | 10.0   |         |         |
| CUTTINGS DIAMETER, DENSITY.....    | 2.5    | 2.50    |         |
| FINISHING DEPTH.....               | 2767.7 |         |         |
| CUMULATIVE HOURS, TURNS.....       | 28.25  | 96616   |         |
| BIT CONDITION OUT.....             | T 8    | B 4     | G 0.250 |

|                                    |               |         |         |
|------------------------------------|---------------|---------|---------|
| BIT NUMBER: 12                     | IADC CODE 617 | HTC J44 |         |
| STARTING DEPTH.....                | 2767.7        |         |         |
| BIT COST, RIG COST/HOUR.....       | 4919.00       | 5475.00 |         |
| TRIP TIME.....                     | 7.8           |         |         |
| BIT DIAMETER.....                  | 12.250        |         |         |
| NOZZLES.....                       | 16            | 16      | 16      |
| DRILL COLLAR LENGTH, OD, ID.....   | 177.43        | 8.000   | 2.813   |
| HW DRILL PIPE LENGTH, OD, ID.....  | 80.96         | 5.000   | 3.125   |
| DRILL PIPE OD, ID.....             |               | 5.000   | 4.276   |
| CASING DEPTH, ID.....              | 808.00        | 12.615  |         |
| RISER LENGTH, ID.....              | 71.00         | 21.000  |         |
| PUMP VOLUMES 1 AND 2.....          | 0.119         | 0.119   |         |
| PORE PRESSURE CALC EXPONENT.....   | 1.20          |         |         |
| NORMAL PORE PRESSURE.....          | 8.7           |         |         |
| OVERBURDEN GRADIENT MODIFIER.....  | 0.00          |         |         |
| STRESS RATIO MODIFIER.....         | 0.50          |         |         |
| "d" EXPONENT CORRECTION FACTOR.... | 10.0          |         |         |
| CUTTINGS DIAMETER, DENSITY.....    | 2.5           | 2.50    |         |
| FINISHING DEPTH.....               | 2806.3        |         |         |
| CUMULATIVE HOURS, TURNS.....       | 6.93          | 18538   |         |
| BIT CONDITION OUT.....             | T 1           | B 1     | G 0.000 |

|                                    |             |            |         |
|------------------------------------|-------------|------------|---------|
| BIT NUMBER: 12                     | IADC CODE 4 | CHRIS C-20 |         |
| STARTING DEPTH.....                | 2806.3      |            |         |
| BIT COST, RIG COST/HOUR.....       | 16085.00    | 5475.00    |         |
| TRIP TIME.....                     | 8.0         |            |         |
| BIT DIAMETER.....                  | 8.469       |            |         |
| NOZZLES.....                       | 14          | 14         | 13      |
| DRILL COLLAR LENGTH, OD, ID.....   | 181.92      | 8.000      | 2.813   |
| HW DRILL PIPE LENGTH, OD, ID.....  | 80.96       | 5.000      | 3.125   |
| DRILL PIPE OD, ID.....             |             | 5.000      | 4.276   |
| CASING DEPTH, ID.....              | 808.00      | 12.615     |         |
| RISER LENGTH, ID.....              | 71.00       | 21.000     |         |
| PUMP VOLUMES 1 AND 2.....          | 0.119       | 0.119      |         |
| PORE PRESSURE CALC EXPONENT.....   | 1.20        |            |         |
| NORMAL PORE PRESSURE.....          | 8.7         |            |         |
| OVERBURDEN GRADIENT MODIFIER.....  | 0.00        |            |         |
| STRESS RATIO MODIFIER.....         | 0.50        |            |         |
| "d" EXPONENT CORRECTION FACTOR.... | 10.0        |            |         |
| CUTTINGS DIAMETER, DENSITY.....    | 2.5         | 2.50       |         |
| FINISHING DEPTH.....               | 2824.0      |            |         |
| CUMULATIVE HOURS, TURNS.....       | 6.66        | 38355      |         |
| BIT CONDITION OUT.....             | T 0         | B 0        | G 0.100 |

BIT NUMBER: 13 IADC CODE 537 HTC J33

|                                    |         |         |         |
|------------------------------------|---------|---------|---------|
| STARTING DEPTH.....                | 2824.0  |         |         |
| BIT COST, RIG COST/HOUR.....       | 6637.00 | 5475.00 |         |
| TRIP TIME.....                     | 8.3     |         |         |
| BIT DIAMETER.....                  | 12.250  |         |         |
| NOZZLES.....                       | 16      | 16      | 16      |
| DRILL COLLAR LENGTH, OD, ID.....   | 172.15  | 8.000   | 2.813   |
| HW DRILL PIPE LENGTH, OD, ID.....  | 79.57   | 5.000   | 3.125   |
| DRILL PIPE OD, ID.....             |         | 5.000   | 4.276   |
| CASING DEPTH, ID.....              | 808.00  | 12.615  |         |
| RISER LENGTH, ID.....              | 71.00   | 21.000  |         |
| PUMP VOLUMES 1 AND 2.....          | 0.119   | 0.119   |         |
| PORE PRESSURE CALC EXPONENT.....   | 1.20    |         |         |
| NORMAL PORE PRESSURE.....          | 8.7     |         |         |
| OVERBURDEN GRADIENT MODIFIER.....  | 0.00    |         |         |
| STRESS RATIO MODIFIER.....         | 0.50    |         |         |
| "d" EXPONENT CORRECTION FACTOR.... | 10.0    |         |         |
| CUTTINGS DIAMETER, DENSITY.....    | 2.5     | 2.50    |         |
| FINISHING DEPTH.....               | 2953.4  |         |         |
| CUMULATIVE HOURS, TURNS.....       | 28.13   | 90901   |         |
| BIT CONDITION OUT.....             | T 3     | B 4     | G 0.063 |

BIT NUMBER: 14 IADC CODE 537 HTC J33

|                                    |         |         |         |
|------------------------------------|---------|---------|---------|
| STARTING DEPTH.....                | 2953.4  |         |         |
| BIT COST, RIG COST/HOUR.....       | 6637.00 | 5475.00 |         |
| TRIP TIME.....                     | 8.5     |         |         |
| BIT DIAMETER.....                  | 12.250  |         |         |
| NOZZLES.....                       | 16      | 16      | 18      |
| DRILL COLLAR LENGTH, OD, ID.....   | 172.15  | 8.000   | 2.813   |
| HW DRILL PIPE LENGTH, OD, ID.....  | 79.57   | 5.000   | 3.125   |
| DRILL PIPE OD, ID.....             |         | 5.000   | 4.276   |
| CASING DEPTH, ID.....              | 808.00  | 12.615  |         |
| RISER LENGTH, ID.....              | 71.00   | 21.000  |         |
| PUMP VOLUMES 1 AND 2.....          | 0.119   | 0.119   |         |
| PORE PRESSURE CALC EXPONENT.....   | 1.20    |         |         |
| NORMAL PORE PRESSURE.....          | 8.7     |         |         |
| OVERBURDEN GRADIENT MODIFIER.....  | 0.00    |         |         |
| STRESS RATIO MODIFIER.....         | 0.50    |         |         |
| "d" EXPONENT CORRECTION FACTOR.... | 10.0    |         |         |
| CUTTINGS DIAMETER, DENSITY.....    | 2.5     | 2.50    |         |
| FINISHING DEPTH.....               | 3085.0  |         |         |
| CUMULATIVE HOURS, TURNS.....       | 34.10   | 111908  |         |
| BIT CONDITION OUT.....             | T 3     | B 4     | G 0.125 |

## HYDRAULIC ANALYSIS

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Data listed from data tape every 100m for each bit run.

DEPTH. . . . . Metres

FLOW RATE. . . . . Rate of mud flow into the well,  
in gallons per minute

ANNULAR VOLUMES. . . . Barrels, Barrels/metre

ANNULAR VELOCITIES . . Metres/minute

CRITICAL VELOCITIES. . The annular velocity above which  
the flow becomes turbulent

SLIP VELOCITY. . . . . The rate of slip of cuttings in the  
annulus under laminar flow

ASCEND VELOCITY. . . . The rate of ascent of cuttings in the  
annulus under laminar flow

PRESSURE UNITS . . . . Pounds per square inch

HHP. . . . . Hydraulic horsepower at the bit

IMPACT FORCE . . . . . The impact force at the bit,  
in foot pound per second squared

JET VELOCITY . . . . . The velocity of mud through the bit  
nozzles, in metres per second

DENSITY UNITS. . . . . Pounds per gallon

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 100.0 AND TVD 100.0

SPM 1 108            SPM 2 98            FLOW RATE 1012

ANNULAR HYDRAULICS:

| ANNULUS TYPE | VOL/UNIT | VOL | ANN VEL | CRIT VEL | TYPE OF FLOW        | SLIP VEL | ASCEND VEL | PRESSURE DROP |
|--------------|----------|-----|---------|----------|---------------------|----------|------------|---------------|
| HWDC/OH      | 1.851    | 43  | 13      | 12       | TURBULENT           |          |            | 0.0           |
| DC/OH        | 1.950    | 77  | 12      | 12       | TURBULENT           |          |            | 0.0           |
| HWDP/OH      | 2.074    | 77  | 12      | 11       | TURBULENT           |          |            | 0.0           |
| TOTAL VOLUME |          | 197 |         |          | TOTAL PRESSURE DROP |          |            | 0.0           |

LAG: 8.2 MINUTES            887 STROKES #1 AND 799 STROKES #2

BIT HYDRAULICS:

|                    |       |           |      |              |      |
|--------------------|-------|-----------|------|--------------|------|
| PRESSURE DROP      | 957.7 | HHP       | 566  | IMPACT FORCE | 1590 |
| % SURFACE PRESSURE | 68.3  | HHP/sq.in | 1.07 | JET VELOCITY | 107  |

PRESSURE BREAKDOWN:

|         |        |               |        |
|---------|--------|---------------|--------|
| SURFACE | 58.9   |               |        |
| STRING  | 196.1  |               |        |
| BIT     | 957.7  |               |        |
| ANNULUS | 0.0    |               |        |
| TOTAL   | 1212.7 | PUMP PRESSURE | 1402.3 |
|         |        | % DIFFERENCE  | 13.5   |

BOTTOM HOLE PRESSURES:

|                  | DENSITY UNITS             | PRESSURE UNITS             |
|------------------|---------------------------|----------------------------|
| NOT CIRCULATING: | MUD WEIGHT 8.60           | HYDROSTATIC PRESSURE 146.7 |
| CIRCULATING:     | ECD 8.60                  | CIRCULATING PRESSURE 146.7 |
| PULLING OUT:     | TRIP MARGIN 0.00          | ESTIMATED SWAB 0.0         |
|                  | EFFECTIVE MUD WEIGHT 8.60 | BOTTOM HOLE PRESSURE 146.7 |

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 200.0 AND TVD 200.0

SPM 1 107            SPM 2 97            FLOW RATE 1004

ANNULAR HYDRAULICS:

| ANNULUS<br>TYPE | VOL/<br>UNIT | VOL | ANN<br>VEL | CRIT<br>VEL | TYPE OF<br>FLOW     | SLIP<br>VEL | ASCEND<br>VEL | PRESSURE<br>DROP |
|-----------------|--------------|-----|------------|-------------|---------------------|-------------|---------------|------------------|
| HWDC/OH         | 1.851        | 43  | 13         | 12          | TURBULENT           |             |               | 0.0              |
| DC/OH           | 1.950        | 77  | 12         | 12          | TURBULENT           |             |               | 0.0              |
| HWDP/OH         | 2.074        | 189 | 12         | 11          | TURBULENT           |             |               | 0.0              |
| DP/OH           | 2.074        | 96  | 12         | 11          | TURBULENT           |             |               | 0.0              |
| TOTAL VOLUME    |              | 405 |            |             | TOTAL PRESSURE DROP |             |               | 0.0              |

LAG: 16.9 MINUTES            1808 STROKES #1 AND 1650 STROKES #2

BIT HYDRAULICS:

|                    |       |           |      |              |      |
|--------------------|-------|-----------|------|--------------|------|
| PRESSURE DROP      | 942.4 | HHP       | 552  | IMPACT FORCE | 1565 |
| % SURFACE PRESSURE | 64.6  | HHP/sq.in | 1.04 | JET VELOCITY | 106  |

PRESSURE BREAKDOWN:

|         |        |               |                             |
|---------|--------|---------------|-----------------------------|
| SURFACE | 58.0   |               |                             |
| STRING  | 289.7  |               |                             |
| BIT     | 942.4  |               |                             |
| ANNULUS | 0.0    |               |                             |
| TOTAL   | 1290.2 | PUMP PRESSURE | 1458.1    % DIFFERENCE 11.5 |

BOTTOM HOLE PRESSURES:

|                  |                      | DENSITY<br>UNITS |                      | PRESSURE<br>UNITS |
|------------------|----------------------|------------------|----------------------|-------------------|
| NOT CIRCULATING: | MUD WEIGHT           | 8.60             | HYDROSTATIC PRESSURE | 293.4             |
| CIRCULATING:     | ECD                  | 8.60             | CIRCULATING PRESSURE | 293.5             |
| PULLING OUT:     | TRIP MARGIN          | 0.00             | ESTIMATED SWAB       | 0.0               |
|                  | EFFECTIVE MUD WEIGHT | 8.60             | BOTTOM HOLE PRESSURE | 293.4             |

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 300.0 AND TVD 300.0

SPM 1 120            SPM 2 0            FLOW RATE 590

ANNULAR HYDRAULICS:

| ANNULUS TYPE | VOL/UNIT | VOL | ANN VEL | CRIT VEL | TYPE OF FLOW        | SLIP VEL | ASCEND VEL | PRESSURE DROP |
|--------------|----------|-----|---------|----------|---------------------|----------|------------|---------------|
| HWDC/OH      | 0.673    | 14  | 21      | 15       | TURBULENT           |          |            | 0.0           |
| DC/OH        | 0.772    | 66  | 18      | 14       | TURBULENT           |          |            | 0.0           |
| DC/CSG       | 0.961    | 11  | 15      | 14       | TURBULENT           |          |            | 0.0           |
| HWDP/CSG     | 1.085    | 86  | 13      | 13       | TURBULENT           |          |            | 0.0           |
| DP/CSG       | 1.085    | 34  | 13      | 13       | TURBULENT           |          |            | 0.0           |
| DP/RIS       | 1.325    | 94  | 11      | 12       | LAMINAR             | 1        | 10         | 0.0           |
| TOTAL VOLUME |          | 306 |         |          | TOTAL PRESSURE DROP |          |            | 0.1           |

LAG: 21.8 MINUTES            2613 STROKES #1 AND            0 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP            501.3            HHP            172            IMPACT FORCE            674  
 % SURFACE PRESSURE    47.6            HHP/sqin    0.72            JET VELOCITY            77

PRESSURE BREAKDOWN:

SURFACE            22.5  
 STRING            166.9  
 BIT                501.3  
 ANNULUS            0.1  
 TOTAL            690.7            PUMP PRESSURE    1054.0            % DIFFERENCE    34.5

BOTTOM HOLE PRESSURES:

|                  | DENSITY UNITS             | PRESSURE UNITS             |
|------------------|---------------------------|----------------------------|
| NOT CIRCULATING: | MUD WEIGHT 8.70           | HYDROSTATIC PRESSURE 445.3 |
| CIRCULATING:     | ECD 8.70                  | CIRCULATING PRESSURE 445.4 |
| PULLING OUT:     | TRIP MARGIN 0.00          | ESTIMATED SWAB 0.2         |
|                  | EFFECTIVE MUD WEIGHT 8.70 | BOTTOM HOLE PRESSURE 445.1 |

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 400.0 AND TVD 400.0

SPM 1 100          SPM 2 108          FLOW RATE 1024

ANNULAR HYDRAULICS:

| ANNULUS TYPE | VOL/UNIT | VOL | ANN VEL | CRIT VEL | TYPE OF FLOW | SLIP VEL            | ASCEND VEL | PRESSURE DROP |
|--------------|----------|-----|---------|----------|--------------|---------------------|------------|---------------|
| HWDC/OH      | 0.673    | 14  | 36      | 15       | TURBULENT    |                     |            | 0.0           |
| DC/OH        | 0.772    | 75  | 32      | 14       | TURBULENT    |                     |            | 0.1           |
| HWDP/OH      | 0.896    | 71  | 27      | 13       | TURBULENT    |                     |            | 0.1           |
| DP/OH        | 0.896    | 8   | 27      | 13       | TURBULENT    |                     |            | 0.0           |
| DP/CSG       | 1.085    | 133 | 22      | 13       | TURBULENT    |                     |            | 0.0           |
| DP/RIS       | 1.325    | 94  | 18      | 12       | TURBULENT    |                     |            | 0.0           |
| TOTAL VOLUME |          | 395 |         |          |              | TOTAL PRESSURE DROP |            | 0.3           |

LAG: 16.2 MINUTES          1621 STROKES #1 AND 1757 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP          1529.6          HHP          914          IMPACT FORCE          2057  
 % SURFACE PRESSURE          57.2          HHP/sqin          3.80          JET VELOCITY          134

PRESSURE BREAKDOWN:

SURFACE          61.2  
 STRING          490.3  
 BIT          1529.6  
 ANNULUS          0.3  
 TOTAL          2081.5          PUMP PRESSURE          2676.1          % DIFFERENCE          22.2

BOTTOM HOLE PRESSURES:

|                                      | DENSITY UNITS | PRESSURE UNITS                      |
|--------------------------------------|---------------|-------------------------------------|
| NOT CIRCULATING:          MUD WEIGHT | 8.80          | HYDROSTATIC PRESSURE          600.5 |
| CIRCULATING:          ECD            | 8.80          | CIRCULATING PRESSURE          600.8 |
| PULLING OUT:          TRIP MARGIN    | 0.01          | ESTIMATED SWAB          0.6         |
| EFFECTIVE MUD WEIGHT                 | 8.79          | BOTTOM HOLE PRESSURE          600.0 |



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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 500.0 AND TVD 500.0

SPM 1 102            SPM 2 109            FLOW RATE 1040

ANNULAR HYDRAULICS:

| ANNULUS<br>TYPE | VOL/<br>UNIT | VOL | ANN<br>VEL | CRIT<br>VEL | TYPE OF<br>FLOW     | SLIP ASCEND<br>VEL | ASCEND<br>VEL | PRESSURE<br>DROP |
|-----------------|--------------|-----|------------|-------------|---------------------|--------------------|---------------|------------------|
| HWDC/OH         | 0.673        | 14  | 37         | 15          | TURBULENT           |                    |               | 0.0              |
| DC/OH           | 0.772        | 75  | 32         | 14          | TURBULENT           |                    |               | 0.1              |
| HWDP/OH         | 0.896        | 71  | 28         | 13          | TURBULENT           |                    |               | 0.1              |
| DP/OH           | 0.896        | 97  | 28         | 13          | TURBULENT           |                    |               | 0.1              |
| DP/CSG          | 1.085        | 133 | 23         | 12          | TURBULENT           |                    |               | 0.1              |
| DP/RIS          | 1.325        | 94  | 19         | 12          | TURBULENT           |                    |               | 0.0              |
| TOTAL VOLUME    |              | 485 |            |             | TOTAL PRESSURE DROP |                    |               | 0.4              |

LAG: 19.6 MINUTES            2001 STROKES #1 AND 2143 STROKES #2

RIT HYDRAULICS:

|                    |        |           |      |              |      |
|--------------------|--------|-----------|------|--------------|------|
| PRESSURE DROP      | 1596.3 | HHP       | 969  | IMPACT FORCE | 2146 |
| % SURFACE PRESSURE | 60.4   | HHP/sq in | 4.03 | JET VELOCITY | 136  |

PRESSURE BREAKDOWN:

|         |        |               |        |
|---------|--------|---------------|--------|
| SURFACE | 63.6   |               |        |
| STRING  | 545.5  |               |        |
| BIT     | 1596.3 |               |        |
| ANNULUS | 0.4    |               |        |
| TOTAL   | 2205.7 | PUMP PRESSURE | 2644.7 |
|         |        | % DIFFERENCE  | 16.6   |

BOTTOM HOLE PRESSURES:

|                  | DENSITY<br>UNITS          | PRESSURE<br>UNITS          |
|------------------|---------------------------|----------------------------|
| NOT CIRCULATING: | MUD WEIGHT 8.90           | HYDROSTATIC PRESSURE 759.2 |
| CIRCULATING:     | ECD 8.90                  | CIRCULATING PRESSURE 759.5 |
| PULLING OUT:     | TRIP MARGIN 0.01          | ESTIMATED SWAB 0.7         |
|                  | EFFECTIVE MUD WEIGHT 8.89 | BOTTOM HOLE PRESSURE 758.5 |

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 600.0 AND TVD 600.0

SPM 1 100            SPM 2 110            FLOW RATE 1032

ANNULAR HYDRAULICS:

| ANNULUS<br>TYPE | VOL/<br>UNIT | VOL | ANN<br>VEL | CRIT<br>VEL | TYPE OF<br>FLOW     | SLIP ASCEND<br>VEL | ASCEND<br>VEL | PRESSURE<br>DROP |
|-----------------|--------------|-----|------------|-------------|---------------------|--------------------|---------------|------------------|
| HWDC/OH         | 0.673        | 14  | 37         | 15          | TURBULENT           |                    |               | 0.0              |
| DC/OH           | 0.772        | 75  | 32         | 14          | TURBULENT           |                    |               | 0.1              |
| HWDP/OH         | 0.896        | 71  | 27         | 13          | TURBULENT           |                    |               | 0.1              |
| DP/OH           | 0.896        | 187 | 27         | 13          | TURBULENT           |                    |               | 0.1              |
| DP/CSG          | 1.085        | 133 | 23         | 13          | TURBULENT           |                    |               | 0.1              |
| DP/RIS          | 1.325        | 94  | 19         | 12          | TURBULENT           |                    |               | 0.0              |
| TOTAL VOLUME    |              | 574 |            |             | TOTAL PRESSURE DROP |                    |               | 0.4              |

LAG: 23.4 MINUTES            2338 STROKES #1 AND 2572 STROKES #2

BIT HYDRAULICS:

|                    |        |          |      |              |      |
|--------------------|--------|----------|------|--------------|------|
| PRESSURE DROP      | 1552.9 | HHP      | 935  | IMPACT FORCE | 2088 |
| % SURFACE PRESSURE | 58.4   | HHP/sqin | 3.89 | JET VELOCITY | 135  |

PRESSURE BREAKDOWN:

|         |        |               |        |
|---------|--------|---------------|--------|
| SURFACE | 62.1   |               |        |
| STRING  | 568.6  |               |        |
| BIT     | 1552.9 |               |        |
| ANNULUS | 0.4    |               |        |
| TOTAL   | 2183.9 | PUMP PRESSURE | 2660.0 |
|         |        | % DIFFERENCE  | 17.9   |

BOTTOM HOLE PRESSURES:

|                  | DENSITY<br>UNITS          | PRESSURE<br>UNITS          |
|------------------|---------------------------|----------------------------|
| NOT CIRCULATING: | MUD WEIGHT 8.80           | HYDROSTATIC PRESSURE 900.8 |
| CIRCULATING:     | ECD 8.80                  | CIRCULATING PRESSURE 901.2 |
| PULLING OUT:     | TRIP MARGIN 0.01          | ESTIMATED SWAB 0.8         |
|                  | EFFECTIVE MUD WEIGHT 8.79 | BOTTOM HOLE PRESSURE 899.9 |



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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 800.0 AND TVD 800.0

SPM 1 99            SPM 2 102            FLOW RATE 985

ANNULAR HYDRAULICS:

| ANNULUS TYPE | VOL/UNIT | VOL | ANN VEL | CRIT VEL | TYPE OF FLOW        | SLIP VEL | ASCEND VEL | PRESSURE DROP |
|--------------|----------|-----|---------|----------|---------------------|----------|------------|---------------|
| HWDC/OH      | 0.673    | 14  | 35      | 15       | TURBULENT           |          |            | 0.0           |
| DC/OH        | 0.772    | 75  | 30      | 14       | TURBULENT           |          |            | 0.1           |
| HWDP/OH      | 0.896    | 71  | 26      | 13       | TURBULENT           |          |            | 0.0           |
| DP/OH        | 0.896    | 366 | 26      | 13       | TURBULENT           |          |            | 0.3           |
| DP/CSG       | 1.085    | 133 | 22      | 13       | TURBULENT           |          |            | 0.0           |
| DP/RIS       | 1.325    | 94  | 18      | 12       | TURBULENT           |          |            | 0.0           |
| TOTAL VOLUME |          | 754 |         |          | TOTAL PRESSURE DROP |          |            | 0.5           |

LAG: 32.1 MINUTES            3174 STROKES #1 AND 3268 STROKES #2

BIT HYDRAULICS:

|                    |        |          |      |              |      |
|--------------------|--------|----------|------|--------------|------|
| PRESSURE DROP      | 1399.2 | HHP      | 804  | IMPACT FORCE | 1882 |
| % SURFACE PRESSURE | 52.5   | HHP/sqin | 3.34 | JET VELOCITY | 129  |

PRESSURE BREAKDOWN:

|         |        |               |        |
|---------|--------|---------------|--------|
| SURFACE | 56.6   |               |        |
| STRING  | 583.5  |               |        |
| BIT     | 1399.2 |               |        |
| ANNULUS | 0.5    |               |        |
| TOTAL   | 2039.8 | PUMP PRESSURE | 2667.3 |
|         |        | % DIFFERENCE  | 23.5   |

BOTTOM HOLE PRESSURES:

|                  |                      | DENSITY UNITS |                      | PRESSURE UNITS |
|------------------|----------------------|---------------|----------------------|----------------|
| NOT CIRCULATING: | MUD WEIGHT           | 8.70          | HYDROSTATIC PRESSURE | 1187.4         |
| CIRCULATING:     | ECD                  | 8.70          | CIRCULATING PRESSURE | 1187.9         |
| PULLING OUT:     | TRIP MARGIN          | 0.01          | ESTIMATED SWAB       | 1.0            |
|                  | EFFECTIVE MUD WEIGHT | 8.69          | BOTTOM HOLE PRESSURE | 1186.4         |

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 900.0 AND TVD 900.0

SPM 1 85 SPM 2 87 FLOW RATE 846

ANNULAR HYDRAULICS:

| ANNULUS TYPE | VOL/UNIT | VOL | ANN VEL             | CRIT VEL | TYPE OF FLOW | SLIP VEL | ASCEND VEL | PRESSURE DROP |
|--------------|----------|-----|---------------------|----------|--------------|----------|------------|---------------|
| DC/OH        | 0.274    | 25  | 73                  | 127      | LAMINAR      | 1        | 72         | 4.2           |
| DC/CSG       | 0.303    | 17  | 66                  | 127      | LAMINAR      | 1        | 66         | 2.2           |
| HWDP/CSG     | 0.427    | 34  | 47                  | 125      | LAMINAR      | 0        | 47         | 1.6           |
| DP/CSG       | 0.427    | 257 | 47                  | 125      | LAMINAR      | 0        | 47         | 12.0          |
| DP/RIS       | 1.325    | 94  | 15                  | 122      | LAMINAR      | 0        | 15         | 0.4           |
| TOTAL VOLUME |          | 427 | TOTAL PRESSURE DROP |          |              | 20.4     |            |               |

LAG: 21.2 MINUTES 1811 STROKES #1 AND 1842 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP 1730.1 HHP 854 IMPACT FORCE 1838  
% SURFACE PRESSURE 62.4 HHP/sqin 7.25 JET VELOCITY 140

PRESSURE BREAKDOWN:

SURFACE 58.9  
STRING 722.7  
BIT 1730.1  
ANNULUS 20.4  
TOTAL 2532.1 PUMP PRESSURE 2772.5 % DIFFERENCE 8.7

BOTTOM HOLE PRESSURES:

|                             | DENSITY UNITS | PRESSURE UNITS              |
|-----------------------------|---------------|-----------------------------|
| NOT CIRCULATING: MUD WEIGHT | 9.10          | HYDROSTATIC PRESSURE 1397.2 |
| CIRCULATING: ECD            | 9.23          | CIRCULATING PRESSURE 1417.7 |
| PULLING OUT: TRIP MARGIN    | 0.27          | ESTIMATED SWAB 40.9         |
| EFFECTIVE MUD WEIGHT        | 8.83          | BOTTOM HOLE PRESSURE 1356.4 |

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1000.0 AND TVD 1000.0

SPM 1 86 SPM 2 87 FLOW RATE 847

ANNULAR HYDRAULICS:

| ANNULUS TYPE | VOL/UNIT | VOL | ANN VEL | CRIT VEL | TYPE OF FLOW        | SLIP VEL | ASCEND VEL | PRESSURE DROP |
|--------------|----------|-----|---------|----------|---------------------|----------|------------|---------------|
| DC/OH        | 0.274    | 40  | 74      | 128      | LAMINAR             | 1        | 73         | 6.8           |
| HWDP/OH      | 0.398    | 18  | 51      | 126      | LAMINAR             | 0        | 50         | 1.0           |
| HWDP/CSG     | 0.427    | 15  | 47      | 126      | LAMINAR             | 0        | 47         | 0.7           |
| DP/CSG       | 0.427    | 300 | 47      | 126      | LAMINAR             | 0        | 47         | 14.0          |
| DP/RIS       | 1.325    | 94  | 15      | 123      | LAMINAR             | 0        | 15         | 0.4           |
| TOTAL VOLUME |          | 467 |         |          | TOTAL PRESSURE DROP |          | 22.8       |               |

LAG: 23.2 MINUTES 1983 STROKES #1 AND 2011 STROKES #2

BIT HYDRAULICS:

|                    |        |          |      |              |      |
|--------------------|--------|----------|------|--------------|------|
| PRESSURE DROP      | 1715.1 | HHP      | 848  | IMPACT FORCE | 1822 |
| % SURFACE PRESSURE | 61.2   | HHP/sqin | 7.19 | JET VELOCITY | 140  |

PRESSURE BREAKDOWN:

|         |        |               |        |
|---------|--------|---------------|--------|
| SURFACE | 58.5   |               |        |
| STRING  | 751.5  |               |        |
| BIT     | 1715.1 |               |        |
| ANNULUS | 22.8   |               |        |
| TOTAL   | 2548.0 | PUMP PRESSURE | 2801.5 |
|         |        | % DIFFERENCE  | 9.0    |

BOTTOM HOLE PRESSURES:

|                  | DENSITY UNITS             | PRESSURE UNITS              |
|------------------|---------------------------|-----------------------------|
| NOT CIRCULATING: | MUD WEIGHT 9.00           | HYDROSTATIC PRESSURE 1535.4 |
| CIRCULATING:     | ECD 9.13                  | CIRCULATING PRESSURE 1558.2 |
| PULLING OUT:     | TRIP MARGIN 0.27          | ESTIMATED SWAB 45.6         |
|                  | EFFECTIVE MUD WEIGHT 8.73 | BOTTOM HOLE PRESSURE 1489.8 |

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1100.0 AND TVD 1100.0

SPM 1 85 SPM 2 84 FLOW RATE 828

ANNULAR HYDRAULICS:

| ANNULUS TYPE | VOL/UNIT | VOL | ANN VEL | CRIT VEL | TYPE OF FLOW        | SLIP VEL | ASCEND VEL | PRESSURE DROP |
|--------------|----------|-----|---------|----------|---------------------|----------|------------|---------------|
| DC/OH        | 0.274    | 40  | 72      | 127      | LAMINAR             | 1        | 71         | 6.7           |
| HWDP/OH      | 0.398    | 32  | 50      | 124      | LAMINAR             | 0        | 49         | 1.7           |
| DP/OH        | 0.398    | 26  | 50      | 124      | LAMINAR             | 0        | 49         | 1.4           |
| DP/CSG       | 0.427    | 315 | 46      | 124      | LAMINAR             | 0        | 46         | 14.6          |
| DP/RIS       | 1.325    | 94  | 15      | 121      | LAMINAR             | 0        | 15         | 0.4           |
| TOTAL VOLUME |          | 507 |         |          | TOTAL PRESSURE DROP |          | 24.8       |               |

LAG: 25.7 MINUTES 2186 STROKES #1 AND 2148 STROKES #2

BIT HYDRAULICS:

|                    |        |           |      |              |      |
|--------------------|--------|-----------|------|--------------|------|
| PRESSURE DROP      | 1675.5 | HHP       | 810  | IMPACT FORCE | 1780 |
| % SURFACE PRESSURE | 58.6   | HHP/sq.in | 6.87 | JET VELOCITY | 137  |

PRESSURE BREAKDOWN:

|         |        |               |        |
|---------|--------|---------------|--------|
| SURFACE | 57.1   |               |        |
| STRING  | 767.2  |               |        |
| BIT     | 1675.5 |               |        |
| ANNULUS | 24.8   |               |        |
| TOTAL   | 2524.7 | PUMP PRESSURE | 2859.7 |
|         |        | % DIFFERENCE  | 11.7   |

BOTTOM HOLE PRESSURES:

|                  | DENSITY UNITS             | PRESSURE UNITS              |
|------------------|---------------------------|-----------------------------|
| NOT CIRCULATING: | MUD WEIGHT 9.20           | HYDROSTATIC PRESSURE 1726.5 |
| CIRCULATING:     | ECD 9.33                  | CIRCULATING PRESSURE 1751.3 |
| PULLING OUT:     | TRIP MARGIN 0.26          | ESTIMATED SWAB 49.6         |
|                  | EFFECTIVE MUD WEIGHT 8.94 | BOTTOM HOLE PRESSURE 1676.9 |

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1200.0 AND TVD 1200.0

SPM 1 85 SPM 2 84 FLOW RATE 830

ANNULAR HYDRAULICS:

| ANNULUS TYPE | VOL/UNIT | VOL | ANN VEL | CRIT VEL | TYPE OF FLOW        | SLIP VEL | ASCEND VEL | PRESSURE DROP |
|--------------|----------|-----|---------|----------|---------------------|----------|------------|---------------|
| DC/OH        | 0.274    | 40  | 72      | 114      | LAMINAR             | 1        | 71         | 5.8           |
| HWDP/OH      | 0.398    | 32  | 50      | 110      | LAMINAR             | 0        | 49         | 1.4           |
| DP/OH        | 0.398    | 66  | 50      | 110      | LAMINAR             | 0        | 49         | 2.9           |
| DP/CSG       | 0.427    | 315 | 46      | 109      | LAMINAR             | 0        | 46         | 11.7          |
| DP/RIS       | 1.325    | 94  | 15      | 103      | LAMINAR             | 0        | 15         | 0.3           |
| TOTAL VOLUME |          | 547 |         |          | TOTAL PRESSURE DROP |          | 22.1       |               |

LAG: 27.7 MINUTES 2350 STROKES #1 AND 2325 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP 1682.6 HHP 815 IMPACT FORCE 1788  
 % SURFACE PRESSURE 57.9 HHP/sq in 6.91 JET VELOCITY 137

PRESSURE BREAKDOWN:

SURFACE 60.0  
 STRING 839.9  
 BIT 1682.6  
 ANNULUS 22.1  
 TOTAL 2604.6 PUMP PRESSURE 2906.6 % DIFFERENCE 10.4

BOTTOM HOLE PRESSURES:

|                  | DENSITY UNITS             | PRESSURE UNITS              |
|------------------|---------------------------|-----------------------------|
| NOT CIRCULATING: | MUD WEIGHT 9.20           | HYDROSTATIC PRESSURE 1883.5 |
| CIRCULATING:     | ECD 9.31                  | CIRCULATING PRESSURE 1905.6 |
| PULLING OUT:     | TRIP MARGIN 0.22          | ESTIMATED SWAB 44.2         |
|                  | EFFECTIVE MUD WEIGHT 8.98 | BOTTOM HOLE PRESSURE 1839.3 |



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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1300.0 AND TVD 1300.0

SPM 1 122            SPM 2    0            FLOW RATE    600

ANNULAR HYDRAULICS:

| ANNULUS<br>TYPE | VOL/<br>UNIT | VOL | ANN<br>VEL | CRIT<br>VEL | TYPE OF<br>FLOW | SLIP<br>VEL | ASCEND<br>VEL | PRESSURE<br>DROP |
|-----------------|--------------|-----|------------|-------------|-----------------|-------------|---------------|------------------|
| DC/OH           | 0.274        | 40  | 52         | 114         | LAMINAR         | 1           | 51            | 5.3              |
| HWDP/OH         | 0.398        | 32  | 36         | 110         | LAMINAR         | 0           | 36            | 1.2              |
| DP/OH           | 0.398        | 106 | 36         | 110         | LAMINAR         | 0           | 36            | 4.2              |
| DP/CSG          | 0.427        | 315 | 33         | 109         | LAMINAR         | 0           | 33            | 10.6             |
| DP/RIS          | 1.325        | 94  | 11         | 103         | LAMINAR         | 0           | 11            | 0.3              |

TOTAL VOLUME            587                            TOTAL PRESSURE DROP            21.5

LAG: 41.1 MINUTES            5015 STROKES #1 AND            0 STROKES #2

BIT HYDRAULICS:

|                    |       |          |      |              |     |
|--------------------|-------|----------|------|--------------|-----|
| PRESSURE DROP      | 879.4 | HHP      | 308  | IMPACT FORCE | 934 |
| % SURFACE PRESSURE | 54.6  | HHP/sqin | 2.61 | JET VELOCITY | 99  |

PRESSURE BREAKDOWN:

|         |        |               |        |              |      |
|---------|--------|---------------|--------|--------------|------|
| SURFACE | 33.5   |               |        |              |      |
| STRING  | 487.7  |               |        |              |      |
| BIT     | 879.4  |               |        |              |      |
| ANNULUS | 21.5   |               |        |              |      |
| TOTAL   | 1422.0 | PUMP PRESSURE | 1610.2 | % DIFFERENCE | 11.7 |

BOTTOM HOLE PRESSURES:

|                  |                      | DENSITY<br>UNITS |                      | PRESSURE<br>UNITS |
|------------------|----------------------|------------------|----------------------|-------------------|
| NOT CIRCULATING: | MUD WEIGHT           | 9.20             | HYDROSTATIC PRESSURE | 2040.4            |
| CIRCULATING:     | ECD                  | 9.30             | CIRCULATING PRESSURE | 2061.9            |
| PULLING OUT:     | TRIP MARGIN          | 0.19             | ESTIMATED SWAB       | 43.0              |
|                  | EFFECTIVE MUD WEIGHT | 9.01             | BOTTOM HOLE PRESSURE | 1997.5            |

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1400.0 AND TVD 1400.0

SPM 1 73            SPM 2 80            FLOW RATE 749

ANNULAR HYDRAULICS:

| ANNULUS TYPE | VOL/UNIT | VOL | ANN VEL             | CRIT VEL | TYPE OF FLOW | SLIP VEL | ASCEND VEL | PRESSURE DROP |
|--------------|----------|-----|---------------------|----------|--------------|----------|------------|---------------|
| DC/OH        | 0.274    | 40  | 65                  | 114      | LAMINAR      | 1        | 64         | 5.6           |
| HWDP/OH      | 0.398    | 32  | 45                  | 109      | LAMINAR      | 0        | 44         | 1.3           |
| DP/OH        | 0.398    | 146 | 45                  | 109      | LAMINAR      | 0        | 44         | 6.1           |
| DP/CSG       | 0.427    | 315 | 42                  | 108      | LAMINAR      | 0        | 41         | 11.3          |
| DP/RIS       | 1.325    | 94  | 13                  | 102      | LAMINAR      | 0        | 13         | 0.3           |
| TOTAL VOLUME |          | 627 | TOTAL PRESSURE DROP |          |              |          |            | 24.7          |

LAG: 35.1 MINUTES            2562 STROKES #1 AND 2794 STROKES #2

BIT HYDRAULICS:

|                    |        |          |      |              |      |
|--------------------|--------|----------|------|--------------|------|
| PRESSURE DROP      | 1385.7 | HHP      | 606  | IMPACT FORCE | 1472 |
| % SURFACE PRESSURE | 53.6   | HHP/sqin | 5.14 | JET VELOCITY | 124  |

PRESSURE BREAKDOWN:

|         |        |               |        |
|---------|--------|---------------|--------|
| SURFACE | 50.3   |               |        |
| STRING  | 762.5  |               |        |
| BIT     | 1385.7 |               |        |
| ANNULUS | 24.7   |               |        |
| TOTAL   | 2223.3 | PUMP PRESSURE | 2586.2 |
|         |        | % DIFFERENCE  | 14.0   |

BOTTOM HOLE PRESSURES:

|                  | DENSITY UNITS             | PRESSURE UNITS              |
|------------------|---------------------------|-----------------------------|
| NOT CIRCULATING: | MUD WEIGHT 9.30           | HYDROSTATIC PRESSURE 2221.3 |
| CIRCULATING:     | ECD 9.40                  | CIRCULATING PRESSURE 2246.0 |
| PULLING OUT:     | TRIP MARGIN 0.21          | ESTIMATED SWAB 49.5         |
|                  | EFFECTIVE MUD WEIGHT 9.09 | BOTTOM HOLE PRESSURE 2171.8 |

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1500.0 AND TVD 1500.0

SPM 1 74 SPM 2 80 FLOW RATE 757

ANNULAR HYDRAULICS:

| ANNULUS TYPE | VOL/UNIT | VOL | ANN VEL             | CRIT VEL | TYPE OF FLOW | SLIP VEL | ASCEND VEL | PRESSURE DROP |
|--------------|----------|-----|---------------------|----------|--------------|----------|------------|---------------|
| DC/OH        | 0.274    | 40  | 66                  | 113      | LAMINAR      | 1        | 65         | 5.7           |
| HWD/OH       | 0.398    | 32  | 45                  | 108      | LAMINAR      | 0        | 45         | 1.3           |
| DP/OH        | 0.398    | 185 | 45                  | 108      | LAMINAR      | 0        | 45         | 7.8           |
| DP/CSG       | 0.427    | 315 | 42                  | 108      | LAMINAR      | 0        | 42         | 11.4          |
| DP/RIS       | 1.325    | 94  | 14                  | 101      | LAMINAR      | 0        | 14         | 0.3           |
| TOTAL VOLUME |          | 666 | TOTAL PRESSURE DROP |          |              | 26.5     |            |               |

LAG: 37.0 MINUTES 2749 STROKES #1 AND 2947 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP 1430.6 HHP 632 IMPACT FORCE 1520  
% SURFACE PRESSURE 54.0 HHP/sqin 5.36 JET VELOCITY 125

PRESSURE BREAKDOWN:

SURFACE 51.7  
STRING 813.6  
BIT 1430.6  
ANNULUS 26.5  
TOTAL 2322.4 PUMP PRESSURE 2647.4 % DIFFERENCE 12.3

BOTTOM HOLE PRESSURES:

|                             | DENSITY UNITS | PRESSURE UNITS              |
|-----------------------------|---------------|-----------------------------|
| NOT CIRCULATING: MUD WEIGHT | 9.40          | HYDROSTATIC PRESSURE 2405.5 |
| CIRCULATING: ECD            | 9.50          | CIRCULATING PRESSURE 2432.0 |
| PULLING OUT: TRIP MARGIN    | 0.21          | ESTIMATED SWAB 53.0         |
| EFFECTIVE MUD WEIGHT        | 9.19          | BOTTOM HOLE PRESSURE 2352.5 |

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1600.0 AND TVD 1600.0

SPM 1 83 SPM 2 72 FLOW RATE 762

ANNULAR HYDRAULICS:

| ANNULUS TYPE | VOL/UNIT | VOL | ANN VEL | CRIT VEL | TYPE OF FLOW        | SLIP VEL | ASCEND VEL | PRESSURE DROP |
|--------------|----------|-----|---------|----------|---------------------|----------|------------|---------------|
| DC/OH        | 0.274    | 40  | 66      | 94       | LAMINAR             | 1        | 65         | 4.4           |
| HWD/OH       | 0.398    | 32  | 46      | 87       | LAMINAR             | 1        | 45         | 1.0           |
| DP/OH        | 0.398    | 225 | 46      | 87       | LAMINAR             | 1        | 45         | 6.8           |
| DP/CSG       | 0.427    | 315 | 42      | 86       | LAMINAR             | 0        | 42         | 8.1           |
| DP/RIS       | 1.325    | 94  | 14      | 77       | LAMINAR             | 0        | 14         | 0.2           |
| TOTAL VOLUME |          | 706 |         |          | TOTAL PRESSURE DROP |          | 20.5       |               |

LAG: 38.9 MINUTES 3221 STROKES #1 AND 2816 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP 1479.8 HHP 658 IMPACT FORCE 1572  
 % SURFACE PRESSURE 55.4 HHP/sqin 5.58 JET VELOCITY 126

PRESSURE BREAKDOWN:

SURFACE 55.2  
 STRING 899.9  
 BIT 1479.8  
 ANNULUS 20.5  
 TOTAL 2455.4 PUMP PRESSURE 2670.8 % DIFFERENCE 8.1

BOTTOM HOLE PRESSURES:

|                             | DENSITY UNITS | PRESSURE UNITS              |
|-----------------------------|---------------|-----------------------------|
| NOT CIRCULATING: MUD WEIGHT | 9.60          | HYDROSTATIC PRESSURE 2620.5 |
| CIRCULATING: ECD            | 9.67          | CIRCULATING PRESSURE 2640.9 |
| PULLING OUT: TRIP MARGIN    | 0.15          | ESTIMATED SWAB 40.9         |
| EFFECTIVE MUD WEIGHT        | 9.45          | BOTTOM HOLE PRESSURE 2579.5 |

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1700.0 AND TVD 1700.0

SPM 1 77 SPM 2 79 FLOW RATE 767

ANNULAR HYDRAULICS:

| ANNULUS TYPE | VOL/UNIT | VOL | ANN VEL | CRIT VEL | TYPE OF FLOW        | SLIP VEL | ASCEND VEL | PRESSURE DROP |
|--------------|----------|-----|---------|----------|---------------------|----------|------------|---------------|
| DC/OH        | 0.274    | 41  | 67      | 111      | LAMINAR             | 1        | 66         | 6.1           |
| HWDP/OH      | 0.398    | 32  | 46      | 102      | LAMINAR             | 0        | 45         | 1.3           |
| DP/OH        | 0.398    | 263 | 46      | 102      | LAMINAR             | 0        | 45         | 10.7          |
| DP/CSG       | 0.427    | 315 | 43      | 102      | LAMINAR             | 0        | 42         | 10.8          |
| DP/RIS       | 1.325    | 94  | 14      | 91       | LAMINAR             | 0        | 14         | 0.2           |
| TOTAL VOLUME |          | 746 |         |          | TOTAL PRESSURE DROP |          |            | 29.1          |

LAG: 40.8 MINUTES 3138 STROKES #1 AND 3235 STROKES #2

BIT HYDRAULICS:

|                    |        |          |      |              |      |
|--------------------|--------|----------|------|--------------|------|
| PRESSURE DROP      | 1501.0 | HHP      | 672  | IMPACT FORCE | 1595 |
| % SURFACE PRESSURE | 49.9   | HHP/sqin | 5.70 | JET VELOCITY | 127  |

PRESSURE BREAKDOWN:

|         |        |               |        |
|---------|--------|---------------|--------|
| SURFACE | 59.2   |               |        |
| STRING  | 1008.6 |               |        |
| BIT     | 1501.0 |               |        |
| ANNULUS | 29.1   |               |        |
| TOTAL   | 2597.8 | PUMP PRESSURE | 3010.1 |
|         |        | % DIFFERENCE  | 13.7   |

BOTTOM HOLE PRESSURES:

|                      | DENSITY UNITS    | PRESSURE UNITS              |
|----------------------|------------------|-----------------------------|
| NOT CIRCULATING:     | MUD WEIGHT 9.60  | HYDROSTATIC PRESSURE 2784.2 |
| CIRCULATING:         | ECD 9.70         | CIRCULATING PRESSURE 2813.3 |
| PULLING OUT:         | TRIP MARGIN 0.20 | ESTIMATED SWAB 58.2         |
| EFFECTIVE MUD WEIGHT | 9.40             | BOTTOM HOLE PRESSURE 2726.1 |

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1800.0 AND TVD 1800.0

SPM 1 76 SPM 2 79 FLOW RATE 757

ANNULAR HYDRAULICS:

| ANNULUS TYPE | VOL/UNIT | VOL | ANN VEL | CRIT VEL | TYPE OF FLOW        | SLIP VEL | ASCEND VEL | PRESSURE DROP |
|--------------|----------|-----|---------|----------|---------------------|----------|------------|---------------|
| DC/OH        | 0.274    | 41  | 66      | 111      | LAMINAR             | 1        | 65         | 6.0           |
| MWD/PH       | 0.398    | 32  | 45      | 102      | LAMINAR             | 0        | 45         | 1.3           |
| DP/OH        | 0.398    | 303 | 45      | 102      | LAMINAR             | 0        | 45         | 12.2          |
| DP/CSG       | 0.427    | 315 | 42      | 102      | LAMINAR             | 0        | 42         | 10.7          |
| DP/RIS       | 1.325    | 94  | 14      | 91       | LAMINAR             | 0        | 14         | 0.2           |
| TOTAL VOLUME |          | 785 |         |          | TOTAL PRESSURE DROP |          | 30.5       |               |

LAG: 43.6 MINUTES 3292 STROKES #1 AND 3421 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP 1460.0 HHP 645 IMPACT FORCE 1551  
 % SURFACE PRESSURE 48.8 HHP/sqin 5.47 JET VELOCITY 125

PRESSURE BREAKDOWN:

SURFACE 57.7  
 STRING 1017.0  
 BIT 1460.0  
 ANNULUS 30.5  
 TOTAL 2565.3 PUMP PRESSURE 2992.6 % DIFFERENCE 14.3

BOTTOM HOLE PRESSURES:

|                  | DENSITY UNITS             | PRESSURE UNITS              |
|------------------|---------------------------|-----------------------------|
| NOT CIRCULATING: | MUD WEIGHT 9.60           | HYDROSTATIC PRESSURE 2948.0 |
| CIRCULATING:     | ECD 9.70                  | CIRCULATING PRESSURE 2978.5 |
| PULLING OUT:     | TRIP MARGIN 0.20          | ESTIMATED SWAB 61.1         |
|                  | EFFECTIVE MUD WEIGHT 9.40 | BOTTOM HOLE PRESSURE 2887.0 |

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 1900.0 AND TVD 1900.0

SPM 1 74 SPM 2 78 FLOW RATE 749

ANNULAR HYDRAULICS:

| ANNULUS TYPE | VOL/UNIT | VOL | ANN VEL | CRIT VEL | TYPE OF FLOW        | SLIP VEL | ASCEND VEL | PRESSURE DROP |
|--------------|----------|-----|---------|----------|---------------------|----------|------------|---------------|
| DC/OH        | 0.274    | 41  | 65      | 111      | LAMINAR             | 1        | 64         | 6.0           |
| HWDP/OH      | 0.398    | 32  | 45      | 102      | LAMINAR             | 0        | 44         | 1.3           |
| DP/OH        | 0.398    | 343 | 45      | 102      | LAMINAR             | 0        | 44         | 13.8          |
| DP/CSG       | 0.427    | 315 | 42      | 102      | LAMINAR             | 0        | 41         | 10.7          |
| DP/RIS       | 1.325    | 94  | 13      | 91       | LAMINAR             | 0        | 13         | 0.2           |
| TOTAL VOLUME |          | 825 |         |          | TOTAL PRESSURE DROP |          |            | 32.0          |

LAG: 46.3 MINUTES 3443 STROKES #1 AND 3611 STROKES #2

BIT HYDRAULICS:

|                    |        |           |      |              |      |
|--------------------|--------|-----------|------|--------------|------|
| PRESSURE DROP      | 1430.6 | HHP       | 625  | IMPACT FORCE | 1520 |
| % SURFACE PRESSURE | 48.2   | HHP/sq.in | 5.31 | JET VELOCITY | 124  |

PRESSURE BREAKDOWN:

|         |        |               |        |
|---------|--------|---------------|--------|
| SURFACE | 56.7   |               |        |
| STRING  | 1031.3 |               |        |
| BIT     | 1430.6 |               |        |
| ANNULUS | 32.0   |               |        |
| TOTAL   | 2550.6 | PUMP PRESSURE | 2969.8 |
|         |        | % DIFFERENCE  | 14.1   |

BOTTOM HOLE PRESSURES:

|                  | DENSITY UNITS             | PRESSURE UNITS              |
|------------------|---------------------------|-----------------------------|
| NOT CIRCULATING: | MUD WEIGHT 9.60           | HYDROSTATIC PRESSURE 3111.8 |
| CIRCULATING:     | ECD 9.70                  | CIRCULATING PRESSURE 3143.8 |
| PULLING OUT:     | TRIP MARGIN 0.20          | ESTIMATED SWAB 64.0         |
|                  | EFFECTIVE MUD WEIGHT 9.40 | BOTTOM HOLE PRESSURE 3047.8 |

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 2000.0 AND TVD 2000.0

SPM 1 75            SPM 2 78            FLOW RATE 752

ANNULAR HYDRAULICS:

| ANNULUS TYPE | VOL/UNIT | VOL | ANN VEL | CRIT VEL | TYPE OF FLOW        | SLIP VEL | ASCEND VEL | PRESSURE DROP |
|--------------|----------|-----|---------|----------|---------------------|----------|------------|---------------|
| DC/OH        | 0.274    | 41  | 65      | 112      | LAMINAR             | 1        | 64         | 6.0           |
| HWDP/OH      | 0.398    | 32  | 45      | 103      | LAMINAR             | 0        | 45         | 1.3           |
| DP/OH        | 0.398    | 383 | 45      | 103      | LAMINAR             | 0        | 45         | 15.4          |
| DP/CSG       | 0.427    | 315 | 42      | 102      | LAMINAR             | 0        | 42         | 10.7          |
| DP/RIS       | 1.325    | 94  | 14      | 91       | LAMINAR             | 0        | 13         | 0.2           |
| TOTAL VOLUME |          | 865 |         |          | TOTAL PRESSURE DROP |          | 33.6       |               |

LAG: 48.3 MINUTES            3622 STROKES #1 AND 3772 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP            1424.6            HHP            625            IMPACT FORCE            1514  
 % SURFACE PRESSURE    49.2            HHP/sqin    5.30            JET VELOCITY            124

PRESSURE BREAKDOWN:

SURFACE            56.5  
 STRING            1061.1  
 BIT                1424.6  
 ANNULUS            33.6  
 TOTAL            2575.8            PUMP PRESSURE            2892.7            % DIFFERENCE            11.0

BOTTOM HOLE PRESSURES:

|                  | DENSITY UNITS             | PRESSURE UNITS              |
|------------------|---------------------------|-----------------------------|
| NOT CIRCULATING: | MUD WEIGHT 9.50           | HYDROSTATIC PRESSURE 3241.5 |
| CIRCULATING:     | ECD 9.60                  | CIRCULATING PRESSURE 3275.1 |
| PULLING OUT:     | TRIP MARGIN 0.20          | ESTIMATED SWAB 67.3         |
|                  | EFFECTIVE MUD WEIGHT 9.30 | BOTTOM HOLE PRESSURE 3174.2 |



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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 2100.0 AND TVD 2100.0

SPM 1 74            SPM 2 75            FLOW RATE 735

ANNULAR HYDRAULICS:

| ANNULUS TYPE | VOL/UNIT | VOL | ANN VEL | CRIT VEL | TYPE OF FLOW        | SLIP VEL | ASCEND VEL | PRESSURE DROP |
|--------------|----------|-----|---------|----------|---------------------|----------|------------|---------------|
| DC/OH        | 0.274    | 41  | 64      | 117      | LAMINAR             | 1        | 63         | 6.4           |
| HWDP/OH      | 0.398    | 32  | 44      | 108      | LAMINAR             | 0        | 43         | 1.4           |
| DP/OH        | 0.398    | 423 | 44      | 108      | LAMINAR             | 0        | 43         | 18.2          |
| DP/CSG       | 0.427    | 315 | 41      | 107      | LAMINAR             | 0        | 41         | 11.5          |
| DP/RIS       | 1.325    | 94  | 13      | 96       | LAMINAR             | 0        | 13         | 0.2           |
| TOTAL VOLUME |          | 905 |         |          | TOTAL PRESSURE DROP |          |            | 37.7          |

LAG: 51.7 MINUTES            3842 STROKES #1 AND 3893 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP            1361.2            HHP            583            IMPACT FORCE    1446  
 % SURFACE PRESSURE    48.2            HHP/sq.in    4.95            JET VELOCITY    122

PRESSURE BREAKDOWN:

SURFACE            54.3  
 STRING            1049.7  
 BIT                1361.2  
 ANNULUS            37.7  
 TOTAL            2502.9            PUMP PRESSURE    2826.4            % DIFFERENCE    11.4

BOTTOM HOLE PRESSURES:

|                  | DENSITY UNITS             | PRESSURE UNITS              |
|------------------|---------------------------|-----------------------------|
| NOT CIRCULATING: | MUD WEIGHT 9.50           | HYDROSTATIC PRESSURE 3403.5 |
| CIRCULATING:     | ECD 9.61                  | CIRCULATING PRESSURE 3441.2 |
| PULLING OUT:     | TRIP MARGIN 0.21          | ESTIMATED SWAB 75.3         |
|                  | EFFECTIVE MUD WEIGHT 9.29 | BOTTOM HOLE PRESSURE 3328.2 |

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 2200.0 AND TVD 2200.0

SPM 1 75 SPM 2 75 FLOW RATE 738

ANNULAR HYDRAULICS:

| ANNULUS TYPE | VOL/UNIT | VOL | ANN VEL             | CRIT VEL | TYPE OF FLOW | SLIP VEL | ASCEND VEL | PRESSURE DROP |
|--------------|----------|-----|---------------------|----------|--------------|----------|------------|---------------|
| DC/OH        | 0.274    | 41  | 64                  | 126      | LAMINAR      | 1        | 63         | 7.1           |
| HWDP/OH      | 0.398    | 32  | 44                  | 115      | LAMINAR      | 0        | 44         | 1.5           |
| DP/OH        | 0.398    | 463 | 44                  | 115      | LAMINAR      | 0        | 44         | 21.6          |
| DP/CSG       | 0.427    | 315 | 41                  | 114      | LAMINAR      | 0        | 41         | 12.4          |
| DP/RIS       | 1.325    | 94  | 13                  | 101      | LAMINAR      | 0        | 13         | 0.3           |
| TOTAL VOLUME |          | 945 | TOTAL PRESSURE DROP |          |              | 42.9     |            |               |

LAG: 53.8 MINUTES 4055 STROKES #1 AND 4021 STROKES #2

BIT HYDRAULICS:

|                    |        |          |      |              |      |
|--------------------|--------|----------|------|--------------|------|
| PRESSURE DROP      | 1330.2 | HHP      | 573  | IMPACT FORCE | 1413 |
| % SURFACE PRESSURE | 45.8   | HHP/sqin | 4.86 | JET VELOCITY | 122  |

PRESSURE BREAKDOWN:

|         |        |               |        |
|---------|--------|---------------|--------|
| SURFACE | 55.8   |               |        |
| STRING  | 1110.7 |               |        |
| BIT     | 1330.2 |               |        |
| ANNULUS | 42.9   |               |        |
| TOTAL   | 2539.6 | PUMP PRESSURE | 2904.5 |
|         |        | % DIFFERENCE  | 12.6   |

BOTTOM HOLE PRESSURES:

|                      | DENSITY UNITS    | PRESSURE UNITS              |
|----------------------|------------------|-----------------------------|
| NOT CIRCULATING:     | MUD WEIGHT 9.20  | HYDROSTATIC PRESSURE 3453.0 |
| CIRCULATING:         | ECD 9.31         | CIRCULATING PRESSURE 3495.9 |
| PULLING OUT:         | TRIP MARGIN 0.23 | ESTIMATED SWAB 85.8         |
| EFFECTIVE MUD WEIGHT | 8.97             | BOTTOM HOLE PRESSURE 3367.2 |

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 2300.0 AND TVD 2300.0

SPM 1 72 SPM 2 71 FLOW RATE 702

ANNULAR HYDRAULICS:

| ANNULUS TYPE | VOL/UNIT | VOL | ANN VEL | CRIT VEL | TYPE OF FLOW | SLIP VEL | ASCEND VEL | PRESSURE DROP |
|--------------|----------|-----|---------|----------|--------------|----------|------------|---------------|
| DC/OH        | 0.274    | 41  | 61      | 114      | LAMINAR      | 1        | 60         | 5.9           |
| HWDP/OH      | 0.398    | 32  | 42      | 105      | LAMINAR      | 0        | 42         | 1.2           |
| DP/OH        | 0.398    | 503 | 42      | 105      | LAMINAR      | 0        | 42         | 19.7          |
| DP/CSG       | 0.427    | 315 | 39      | 104      | LAMINAR      | 0        | 39         | 10.4          |
| DP/RIS       | 1.325    | 94  | 13      | 93       | LAMINAR      | 0        | 13         | 0.2           |

TOTAL VOLUME 985 TOTAL PRESSURE DROP 37.4

LAG: 59.0 MINUTES 4216 STROKES #1 AND 4200 STROKES #2

BIT HYDRAULICS:

|                    |        |          |      |              |      |
|--------------------|--------|----------|------|--------------|------|
| PRESSURE DROP      | 1201.8 | HHP      | 492  | IMPACT FORCE | 1277 |
| % SURFACE PRESSURE | 40.7   | HHP/sqin | 4.17 | JET VELOCITY | 116  |

PRESSURE BREAKDOWN:

|         |        |               |        |              |      |
|---------|--------|---------------|--------|--------------|------|
| SURFACE | 48.7   |               |        |              |      |
| STRING  | 997.6  |               |        |              |      |
| BIT     | 1201.8 |               |        |              |      |
| ANNULUS | 37.4   |               |        |              |      |
| TOTAL   | 2285.5 | PUMP PRESSURE | 2955.6 | % DIFFERENCE | 22.7 |

BOTTOM HOLE PRESSURES:

|                  | DENSITY UNITS             | PRESSURE UNITS              |
|------------------|---------------------------|-----------------------------|
| NOT CIRCULATING: | MUD WEIGHT 9.20           | HYDROSTATIC PRESSURE 3610.0 |
| CIRCULATING:     | ECD 9.30                  | CIRCULATING PRESSURE 3647.3 |
| PULLING OUT:     | TRIP MARGIN 0.19          | ESTIMATED SWAB 74.7         |
|                  | EFFECTIVE MUD WEIGHT 9.01 | BOTTOM HOLE PRESSURE 3535.2 |

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 2400.0 AND TVD 2400.0

SPM 1 71 SPM 2 73 FLOW RATE 704

ANNULAR HYDRAULICS:

| ANNULUS TYPE | VOL/UNIT | VOL  | ANN VEL | CRIT VEL | TYPE OF FLOW        | SLIP VEL | ASCEND VEL | PRESSURE DROP |
|--------------|----------|------|---------|----------|---------------------|----------|------------|---------------|
| DC/OH        | 0.274    | 41   | 61      | 118      | LAMINAR             | 1        | 60         | 6.2           |
| HWDP/OH      | 0.398    | 32   | 42      | 108      | LAMINAR             | 0        | 42         | 1.3           |
| DP/OH        | 0.398    | 542  | 42      | 108      | LAMINAR             | 0        | 42         | 22.2          |
| DP/CSG       | 0.427    | 315  | 39      | 107      | LAMINAR             | 0        | 39         | 10.9          |
| DP/RIS       | 1.325    | 94   | 13      | 94       | LAMINAR             | 0        | 13         | 0.2           |
| TOTAL VOLUME |          | 1025 |         |          | TOTAL PRESSURE DROP |          |            | 40.8          |

LAG: 61.1 MINUTES 4314 STROKES #1 AND 4442 STROKES #2

BIT HYDRAULICS:

|                    |        |          |      |              |      |
|--------------------|--------|----------|------|--------------|------|
| PRESSURE DROP      | 1211.8 | HHP      | 498  | IMPACT FORCE | 1288 |
| % SURFACE PRESSURE | 40.0   | HMP/sqin | 4.23 | JET VELOCITY | 117  |

PRESSURE BREAKDOWN:

|         |        |               |        |
|---------|--------|---------------|--------|
| SURFACE | 50.2   |               |        |
| STRING  | 1057.9 |               |        |
| BIT     | 1211.8 |               |        |
| ANNULUS | 40.8   |               |        |
| TOTAL   | 2360.8 | PUMP PRESSURE | 3030.5 |
|         |        | % DIFFERENCE  | 22.1   |

BOTTOM HOLE PRESSURES:

|                      | DENSITY UNITS    | PRESSURE UNITS              |
|----------------------|------------------|-----------------------------|
| NOT CIRCULATING:     | MUD WEIGHT 9.20  | HYDROSTATIC PRESSURE 3766.9 |
| CIRCULATING:         | ECD 9.30         | CIRCULATING PRESSURE 3807.7 |
| PULLING OUT:         | TRIP MARGIN 0.20 | ESTIMATED SWAB 81.6         |
| EFFECTIVE MUD WEIGHT | 9.00             | BOTTOM HOLE PRESSURE 3685.3 |

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 2500.0 AND TVD 2500.0

SPM 1 69 SPM 2 70 FLOW RATE 681

ANNULAR HYDRAULICS:

| ANNULUS TYPE | VOL/UNIT | VOL  | ANN VEL             | CRIT VEL | TYPE OF FLOW | SLIP VEL | ASCEND VEL | PRESSURE DROP |
|--------------|----------|------|---------------------|----------|--------------|----------|------------|---------------|
| DC/OH        | 0.274    | 49   | 59                  | 141      | LAMINAR      | 1        | 59         | 10.2          |
| HMDP/OH      | 0.398    | 32   | 41                  | 129      | LAMINAR      | 0        | 40         | 1.8           |
| DP/OH        | 0.398    | 571  | 41                  | 129      | LAMINAR      | 0        | 40         | 32.3          |
| DP/CSG       | 0.427    | 315  | 38                  | 128      | LAMINAR      | 0        | 38         | 15.0          |
| DP/RIS       | 1.325    | 94   | 12                  | 112      | LAMINAR      | 0        | 12         | 0.3           |
| TOTAL VOLUME |          | 1061 | TOTAL PRESSURE DROP |          |              | 59.6     |            |               |

LAG: 65.5 MINUTES 4518 STROKES #1 AND 4550 STROKES #2

BIT HYDRAULICS:

|                    |        |          |      |              |      |
|--------------------|--------|----------|------|--------------|------|
| PRESSURE DROP      | 1383.1 | HHP      | 549  | IMPACT FORCE | 1351 |
| % SURFACE PRESSURE | 49.3   | HHP/sqin | 4.66 | JET VELOCITY | 123  |

PRESSURE BREAKDOWN:

|         |        |               |        |
|---------|--------|---------------|--------|
| SURFACE | 52.1   |               |        |
| STRING  | 1182.7 |               |        |
| BIT     | 1383.1 |               |        |
| ANNULUS | 59.6   |               |        |
| TOTAL   | 2677.6 | PUMP PRESSURE | 2804.4 |
|         |        | % DIFFERENCE  | 4.5    |

BOTTOM HOLE PRESSURES:

|                      | DENSITY UNITS    | PRESSURE UNITS              |
|----------------------|------------------|-----------------------------|
| NOT CIRCULATING:     | MUD WEIGHT 9.50  | HYDROSTATIC PRESSURE 4051.8 |
| CIRCULATING:         | ECD 9.64         | CIRCULATING PRESSURE 4111.5 |
| PULLING OUT:         | TRIP MARGIN 0.28 | ESTIMATED SWAB 119.3        |
| EFFECTIVE MUD WEIGHT | 9.22             | BOTTOM HOLE PRESSURE 3932.5 |

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 2600.0 AND TVD 2600.0

SPM 1 74 SPM 2 73 FLOW RATE 719

ANNULAR HYDRAULICS:

| ANNULUS TYPE | VOL/UNIT | VOL  | ANN VEL             | CRIT VEL | TYPE OF FLOW | SLIP VEL | ASCEND VEL | PRESSURE DROP |
|--------------|----------|------|---------------------|----------|--------------|----------|------------|---------------|
| DC/OH        | 0.274    | 49   | 62                  | 124      | LAMINAR      | 1        | 62         | 8.2           |
| HWDP/OH      | 0.398    | 32   | 43                  | 112      | LAMINAR      | 0        | 43         | 1.5           |
| DP/OH        | 0.398    | 611  | 43                  | 112      | LAMINAR      | 0        | 43         | 27.5          |
| DP/CSG       | 0.427    | 315  | 40                  | 111      | LAMINAR      | 0        | 40         | 11.9          |
| DP/RIS       | 1.325    | 94   | 13                  | 97       | LAMINAR      | 0        | 13         | 0.2           |
| TOTAL VOLUME |          | 1101 | TOTAL PRESSURE DROP |          |              | 49.4     |            |               |

LAG: 64.3 MINUTES 4730 STROKES #1 AND 4679 STROKES #2

BIT HYDRAULICS:

|                    |        |          |      |              |      |
|--------------------|--------|----------|------|--------------|------|
| PRESSURE DROP      | 1510.4 | HHP      | 634  | IMPACT FORCE | 1475 |
| % SURFACE PRESSURE | 51.5   | HHP/sqin | 5.38 | JET VELOCITY | 130  |

PRESSURE BREAKDOWN:

|         |        |               |        |
|---------|--------|---------------|--------|
| SURFACE | 54.7   |               |        |
| STRING  | 1272.4 |               |        |
| BIT     | 1510.4 |               |        |
| ANNULUS | 49.4   |               |        |
| TOTAL   | 2886.9 | PUMP PRESSURE | 2934.7 |
|         |        | % DIFFERENCE  | 1.6    |

BOTTOM HOLE PRESSURES:

|                  | DENSITY UNITS             | PRESSURE UNITS              |
|------------------|---------------------------|-----------------------------|
| NOT CIRCULATING: | MUD WEIGHT 9.30           | HYDROSTATIC PRESSURE 4125.1 |
| CIRCULATING:     | ECD 9.41                  | CIRCULATING PRESSURE 4174.5 |
| PULLING OUT:     | TRIP MARGIN 0.22          | ESTIMATED SWAB 98.7         |
|                  | EFFECTIVE MUD WEIGHT 9.08 | BOTTOM HOLE PRESSURE 4026.4 |

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 2700.0 AND TVD 2700.0

SPM 1 75            SPM 2 76            FLOW RATE 741

ANNULAR HYDRAULICS:

| ANNULUS TYPE | VOL/ UNIT | VOL  | ANN VEL             | CRIT VEL | TYPE OF FLOW | SLIP VEL | ASCEND VEL | PRESSURE DROP |
|--------------|-----------|------|---------------------|----------|--------------|----------|------------|---------------|
| DC/OH        | 0.274     | 49   | 64                  | 120      | LAMINAR      | 1        | 64         | 7.8           |
| HWDP/OH      | 0.398     | 32   | 44                  | 107      | LAMINAR      | 0        | 44         | 1.3           |
| DP/OH        | 0.398     | 651  | 44                  | 107      | LAMINAR      | 0        | 44         | 27.2          |
| DP/CSG       | 0.427     | 315  | 41                  | 106      | LAMINAR      | 0        | 41         | 11.0          |
| DP/RIS       | 1.325     | 94   | 13                  | 90       | LAMINAR      | 0        | 13         | 0.2           |
| TOTAL VOLUME |           | 1141 | TOTAL PRESSURE DROP |          |              | 47.6     |            |               |

LAG: 64.6 MINUTES            4868 STROKES #1 AND 4882 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP            1342.3            HHP            581            IMPACT FORCE    1426  
% SURFACE PRESSURE    47.4            HHP/sqin    4.93            JET VELOCITY    123

PRESSURE BREAKDOWN:

SURFACE            58.3  
STRING            1388.3  
BIT                1342.3  
ANNULUS            47.6  
TOTAL            2836.5            PUMP PRESSURE    2831.9            % DIFFERENCE    0.2

BOTTOM HOLE PRESSURES:

|   | DENSITY UNITS | PRESSURE UNITS              |
|---|---------------|-----------------------------|
| NOT CIRCULATING:            MUD WEIGHT  | 9.20          | HYDROSTATIC PRESSURE 4237.8 |
| CIRCULATING:                ECD         | 9.30          | CIRCULATING PRESSURE 4285.4 |
| PULLING OUT:                TRIP MARGIN | 0.21          | ESTIMATED SWAB 95.3         |
| EFFECTIVE MUD WEIGHT                    | 8.99          | BOTTOM HOLE PRESSURE 4142.5 |

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 2800.0 AND TVD 2799.9

SPM 1 74 SPM 2 75 FLOW RATE 743

ANNULAR HYDRAULICS:

| ANNULUS TYPE | VOL/UNIT | VOL  | ANN VEL | CRIT VEL | TYPE OF FLOW        | SLIP VEL | ASCEND VEL | PRESSURE DROP |
|--------------|----------|------|---------|----------|---------------------|----------|------------|---------------|
| DC/OH        | 0.274    | 49   | 65      | 121      | LAMINAR             | 1        | 64         | 7.9           |
| HWDP/OH      | 0.398    | 32   | 44      | 110      | LAMINAR             | 0        | 44         | 1.4           |
| DP/OH        | 0.398    | 691  | 44      | 110      | LAMINAR             | 0        | 44         | 30.3          |
| DP/CSG       | 0.427    | 315  | 41      | 109      | LAMINAR             | 0        | 41         | 11.6          |
| DP/RIS       | 1.325    | 94   | 13      | 96       | LAMINAR             | 0        | 13         | 0.2           |
| TOTAL VOLUME |          | 1181 |         |          | TOTAL PRESSURE DROP |          |            | 51.4          |

LAG: 66.7 MINUTES 4950 STROKES #1 AND 4971 STROKES #2

BIT HYDRAULICS:

|                    |        |          |      |              |      |
|--------------------|--------|----------|------|--------------|------|
| PRESSURE DROP      | 1348.6 | HHP      | 585  | IMPACT FORCE | 1433 |
| % SURFACE PRESSURE | 46.5   | HHP/sqin | 4.96 | JET VELOCITY | 123  |

PRESSURE BREAKDOWN:

|         |        |               |        |
|---------|--------|---------------|--------|
| SURFACE | 56.5   |               |        |
| STRING  | 1376.7 |               |        |
| BIT     | 1348.6 |               |        |
| ANNULUS | 51.4   |               |        |
| TOTAL   | 2833.2 | PUMP PRESSURE | 2902.4 |
|         |        | % DIFFERENCE  | 2.4    |

BOTTOM HOLE PRESSURES:

|                  | DENSITY UNITS             | PRESSURE UNITS              |
|------------------|---------------------------|-----------------------------|
| NOT CIRCULATING: | MUD WEIGHT 9.20           | HYDROSTATIC PRESSURE 4394.5 |
| CIRCULATING:     | ECD 9.31                  | CIRCULATING PRESSURE 4445.9 |
| PULLING OUT:     | TRIP MARGIN 0.22          | ESTIMATED SWAB 102.8        |
|                  | EFFECTIVE MUD WEIGHT 8.98 | BOTTOM HOLE PRESSURE 4291.7 |



CORE LAB

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 2900.0 AND TVD 2899.7

SPM 1 72 SPM 2 72 FLOW RATE 720

ANNULAR HYDRAULICS:

| ANNULUS TYPE | VOL/UNIT | VOL  | ANN VEL | CRIT VEL | TYPE OF FLOW        | SLIP VEL | ASCEND VEL | PRESSURE DROP |
|--------------|----------|------|---------|----------|---------------------|----------|------------|---------------|
| DC/OH        | 0.274    | 47   | 63      | 136      | LAMINAR             | 1        | 62         | 9.2           |
| HWDP/OH      | 0.398    | 32   | 43      | 122      | LAMINAR             | 0        | 43         | 1.6           |
| DP/OH        | 0.398    | 733  | 43      | 122      | LAMINAR             | 0        | 43         | 37.4          |
| DP/CSG       | 0.427    | 315  | 40      | 120      | LAMINAR             | 0        | 40         | 13.5          |
| DP/RIS       | 1.325    | 94   | 13      | 103      | LAMINAR             | 0        | 13         | 0.3           |
| TOTAL VOLUME |          | 1221 |         |          | TOTAL PRESSURE DROP |          | 61.9       |               |

LAG: 71.3 MINUTES 5131 STROKES #1 AND 5131 STROKES #2

BIT HYDRAULICS:

|                    |        |          |      |              |      |
|--------------------|--------|----------|------|--------------|------|
| PRESSURE DROP      | 1264.9 | HHP      | 531  | IMPACT FORCE | 1344 |
| % SURFACE PRESSURE | 43.6   | HHP/sqin | 4.51 | JET VELOCITY | 119  |

PRESSURE BREAKDOWN:

|         |        |               |        |
|---------|--------|---------------|--------|
| SURFACE | 57.0   |               |        |
| STRING  | 1410.1 |               |        |
| BIT     | 1264.9 |               |        |
| ANNULUS | 61.9   |               |        |
| TOTAL   | 2793.9 | PUMP PRESSURE | 2900.0 |
|         |        | % DIFFERENCE  | 3.7    |

BOTTOM HOLE PRESSURES:

|                  |                      | DENSITY UNITS |                      | PRESSURE UNITS |
|------------------|----------------------|---------------|----------------------|----------------|
| NOT CIRCULATING: | MUD WEIGHT           | 9.20          | HYDROSTATIC PRESSURE | 4551.2         |
| CIRCULATING:     | ECD                  | 9.33          | CIRCULATING PRESSURE | 4613.1         |
| PULLING OUT:     | TRIP MARGIN          | 0.25          | ESTIMATED SWAB       | 123.7          |
|                  | EFFECTIVE MUD WEIGHT | 8.95          | BOTTOM HOLE PRESSURE | 4427.5         |

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HYDRAULICS ANALYSIS PROGRAM

HYDRAULICS CALCULATIONS AT DEPTH 3000.0 AND TVD 2999.5

SPM 1 76          SPM 2 73          FLOW RATE 746

ANNULAR HYDRAULICS:

| ANNULUS TYPE | VOL/UNIT | VOL  | ANN VEL | CRIT VEL | TYPE OF FLOW | SLIP VEL            | ASCEND VEL | PRESSURE DROP |
|--------------|----------|------|---------|----------|--------------|---------------------|------------|---------------|
| DC/OH        | 0.274    | 47   | 65      | 131      | LAMINAR      | 1                   | 64         | 9.0           |
| HWDP/OH      | 0.398    | 32   | 45      | 122      | LAMINAR      | 0                   | 44         | 1.7           |
| DP/OH        | 0.398    | 773  | 45      | 122      | LAMINAR      | 0                   | 44         | 41.2          |
| DP/CSG       | 0.427    | 315  | 42      | 121      | LAMINAR      | 0                   | 41         | 14.2          |
| DP/RIS       | 1.325    | 94   | 13      | 108      | LAMINAR      | 0                   | 13         | 0.3           |
| TOTAL VOLUME |          | 1261 |         |          |              | TOTAL PRESSURE DROP |            | 66.5          |

LAG: 71.0 MINUTES          5396 STROKES #1 AND 5201 STROKES #2

BIT HYDRAULICS:

PRESSURE DROP          1183.8          HHP          515          IMPACT FORCE          1369  
% SURFACE PRESSURE          37.9          HHP/sqin          4.37          JET VELOCITY          113

PRESSURE BREAKDOWN:

SURFACE          58.3  
STRING          1475.9  
BIT          1183.8  
ANNULUS          66.5  
TOTAL          2784.4          PUMP PRESSURE          3120.9          % DIFFERENCE          10.8

BOTTOM HOLE PRESSURES:

|                  | DENSITY UNITS             | PRESSURE UNITS              |
|------------------|---------------------------|-----------------------------|
| NOT CIRCULATING: | MUD WEIGHT 9.50           | HYDROSTATIC PRESSURE 4861.4 |
| CIRCULATING:     | ECD 9.63                  | CIRCULATING PRESSURE 4927.9 |
| PULLING OUT:     | TRIP MARGIN 0.26          | ESTIMATED SWAB 132.9        |
|                  | EFFECTIVE MUD WEIGHT 9.24 | BOTTOM HOLE PRESSURE 4728.5 |

COMPUTER DATA LISTING : LIST A

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INTERVAL . . . . . All depth records (data not averaged)

DEPTH. . . . . Well depth, in metres

ROP. . . . . Rate of penetration, in metres/hour

WOB. . . . . Weight on bit, in thousands of pounds

RPM. . . . . Rotary speed, in revolutions per minute

MW . . . . . Mud weight in, in pounds per gallon

"dc" . . . . . Calculated "d" exponent, corrected  
for variations in mud weight in,  
using a correction factor of 10 ppq

HOURS. . . . . Cumulative bit hours. The number of  
hours that the bit has actually been  
"on bottom", recorded in decimal hours

URNS. . . . . Cumulative bit turns. The number of turns  
made by the bit, while actually "on bottom"

ICOST. . . . . Incremental cost per metre, calculated from  
the rate of penetration, in A dollars

CCOST. . . . . Cumulative cost per metre, calculated from  
the drilling time, in A dollars

PP . . . . . Pore pressure gradient, in equivalent  
pounds per gallon. The pressure exerted  
by the fluid in the pore spaces of the formation

FG . . . . . Fracture gradient, in equivalent pounds per  
gallon. The pressure required to fracture  
the formation, calculated by the DRILL  
program using Eaton's equation

It is dependant on the pore pressure, the  
overburden gradient and the matrix stress.  
This value may be modified by leak-off  
information

|                  |      |             |        |           |              |
|------------------|------|-------------|--------|-----------|--------------|
| BIT NUMBER       | 1    | IADC CODE   | 111    | INTERVAL  | 71.0- 208.0  |
| HTC OSC3AJ&26"HO |      | SIZE        | 26.000 | NOZZLES   | 20 20 20     |
| COST             | 0.00 | TRIP TIME   | 2.4    | BIT RUN   | 137.0        |
| TOTAL HOURS      | 2.04 | TOTAL TURNS | 15736  | CONDITION | T3 B4 G0.000 |

| DEPTH | ROP   | WOB | RPM | MW  | "d"c | HOURS | TURNS | ICOST  | CCOST  | PP  | FG   |
|-------|-------|-----|-----|-----|------|-------|-------|--------|--------|-----|------|
| 75.0  | 17.0  | 5.0 | 100 | 8.6 | 0.90 | 0.24  | 1412  | 322    | 3607   | 8.4 | 14.7 |
| 80.0  | 43.0  | 5.0 | 100 | 8.6 | 0.72 | 0.35  | 2109  | 127    | 1674   | 8.4 | 14.7 |
| 85.0  | 78.0  | 5.0 | 100 | 8.6 | 0.60 | 0.42  | 2494  | 70     | 1101   | 8.4 | 14.8 |
| 90.0  | 62.0  | 5.0 | 100 | 8.6 | 0.65 | 0.50  | 2978  | 88.31  | 834.60 | 8.4 | 14.8 |
| 95.0  | 96.0  | 5.0 | 100 | 8.6 | 0.56 | 0.55  | 3290  | 57.03  | 672.60 | 8.4 | 14.8 |
| 100.0 | 47.0  | 5.0 | 100 | 8.6 | 0.70 | 0.65  | 3929  | 116.49 | 576.72 | 8.4 | 14.8 |
| 105.0 | 63.7  | 5.0 | 100 | 8.6 | 0.64 | 0.73  | 4400  | 85.95  | 504.55 | 8.4 | 14.9 |
| 110.0 | 130.9 | 5.0 | 102 | 8.6 | 0.51 | 0.77  | 4633  | 41.83  | 445.23 | 8.4 | 14.9 |
| 115.0 | 180.0 | 5.0 | 102 | 8.6 | 0.45 | 0.80  | 4803  | 30.42  | 398.09 | 8.4 | 14.9 |
| 120.0 | 55.4  | 5.0 | 102 | 8.6 | 0.67 | 0.89  | 5356  | 98.83  | 367.55 | 8.4 | 14.9 |
| 125.0 | 91.0  | 4.0 | 150 | 8.6 | 0.63 | 0.94  | 5850  | 60.16  | 339.09 | 8.4 | 14.9 |
| 130.0 | 51.8  | 4.0 | 150 | 8.6 | 0.73 | 1.04  | 6719  | 105.69 | 319.31 | 8.4 | 15.0 |
| 135.0 | 72.3  | 4.0 | 150 | 8.6 | 0.67 | 1.11  | 7341  | 75.73  | 300.28 | 8.4 | 15.0 |
| 140.0 | 47.5  | 3.0 | 150 | 8.6 | 0.72 | 1.22  | 8289  | 115.26 | 286.87 | 8.4 | 15.0 |
| 145.0 | 75.9  | 4.0 | 150 | 8.6 | 0.66 | 1.28  | 8882  | 72.13  | 272.36 | 8.4 | 15.0 |
| 150.0 | 51.0  | 4.0 | 150 | 8.6 | 0.74 | 1.38  | 9764  | 107.35 | 261.92 | 8.4 | 15.1 |
| 155.0 | 75.3  | 3.0 | 150 | 8.6 | 0.64 | 1.45  | 10362 | 72.71  | 250.66 | 8.4 | 15.1 |
| 160.0 | 64.0  | 3.0 | 150 | 8.6 | 0.66 | 1.52  | 11065 | 85.55  | 241.38 | 8.4 | 15.1 |
| 165.0 | 65.2  | 3.0 | 150 | 8.6 | 0.66 | 1.60  | 11755 | 83.97  | 233.01 | 8.4 | 15.1 |
| 170.0 | 97.3  | 3.0 | 150 | 8.6 | 0.59 | 1.65  | 12217 | 56.27  | 224.08 | 8.4 | 15.1 |
| 175.0 | 90.5  | 3.0 | 150 | 8.6 | 0.60 | 1.71  | 12715 | 60.50  | 216.22 | 8.4 | 15.2 |
| 180.0 | 55.9  | 3.0 | 150 | 8.6 | 0.69 | 1.80  | 13520 | 97.94  | 210.79 | 8.4 | 15.2 |
| 185.0 | 88.2  | 3.0 | 150 | 8.6 | 0.61 | 1.85  | 14030 | 62.07  | 204.27 | 8.4 | 15.2 |
| 190.0 | 121.0 | 8.0 | 150 | 8.6 | 0.65 | 1.89  | 14402 | 45.25  | 197.59 | 8.4 | 15.2 |
| 195.0 | 135.3 | 8.0 | 150 | 8.6 | 0.62 | 1.93  | 14734 | 40.47  | 191.25 | 8.4 | 15.2 |
| 200.0 | 98.4  | 8.0 | 150 | 8.6 | 0.69 | 1.98  | 15192 | 55.64  | 186.00 | 8.4 | 15.3 |
| 205.0 | 210.0 | 8.0 | 150 | 8.6 | 0.53 | 2.01  | 15406 | 26.07  | 180.03 | 8.4 | 15.3 |
| 208.0 | 81.7  | 8.0 | 150 | 8.6 | 0.73 | 2.04  | 15736 | 67.01  | 177.55 | 8.4 | 15.3 |

|             |         |             |        |           |              |       |
|-------------|---------|-------------|--------|-----------|--------------|-------|
| BIT NUMBER  | 2       | IADC CODE   | 111    | INTERVAL  | 208.0-       | 825.0 |
| HTC OSC 3AJ |         | SIZE        | 17.500 | NOZZLES   | 18           | 18 18 |
| COST        | 4442.00 | TRIP TIME   | 3.7    | BIT RUN   |              | 617.0 |
| TOTAL HOURS | 12.57   | TOTAL TURNS | 107714 | CONDITION | T2 B2 G0.000 |       |

| DEPTH | ROP   | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST | CCOST  | PP  | FG   |
|-------|-------|------|-----|-----|------|-------|-------|-------|--------|-----|------|
| 210.0 | 100.0 | 2.3  | 120 | 8.6 | 0.56 | 0.02  | 144   | 55    | 12405  | 8.4 | 15.3 |
| 215.0 | 189.5 | 2.0  | 120 | 8.6 | 0.43 | 0.05  | 334   | 29    | 3565   | 8.4 | 15.3 |
| 220.0 | 201.0 | 2.0  | 120 | 8.6 | 0.42 | 0.07  | 513   | 27    | 2091   | 8.4 | 15.4 |
| 225.0 | 225.0 | 2.0  | 121 | 8.6 | 0.40 | 0.09  | 674   | 24    | 1483   | 8.4 | 15.4 |
| 230.0 | 136.4 | 2.0  | 123 | 8.6 | 0.49 | 0.13  | 945   | 40    | 1155   | 8.4 | 15.4 |
| 235.0 | 183.7 | 2.0  | 116 | 8.6 | 0.43 | 0.16  | 1135  | 29.81 | 946.71 | 8.4 | 15.4 |
| 240.0 | 152.5 | 2.0  | 116 | 8.6 | 0.46 | 0.19  | 1363  | 35.89 | 804.39 | 8.4 | 15.4 |
| 245.0 | 74.7  | 2.0  | 116 | 8.6 | 0.59 | 0.26  | 1829  | 73.30 | 705.60 | 8.4 | 15.5 |
| 250.0 | 65.7  | 5.0  | 125 | 8.6 | 0.73 | 0.33  | 2399  | 83.34 | 631.52 | 8.4 | 15.5 |
| 255.0 | 117.6 | 5.0  | 125 | 8.6 | 0.61 | 0.38  | 2718  | 46.54 | 569.29 | 8.4 | 15.5 |
| 260.0 | 111.1 | 10.0 | 125 | 8.6 | 0.71 | 0.42  | 3056  | 49.28 | 519.29 | 8.4 | 15.5 |
| 265.0 | 129.5 | 20.0 | 105 | 8.6 | 0.73 | 0.46  | 3299  | 42.28 | 477.44 | 8.4 | 15.5 |
| 270.0 | 133.3 | 24.7 | 105 | 8.7 | 0.75 | 0.50  | 3535  | 41.06 | 442.25 | 8.4 | 15.6 |
| 275.0 | 168.2 | 23.2 | 97  | 8.7 | 0.65 | 0.53  | 3708  | 32.55 | 411.68 | 8.4 | 15.6 |
| 280.0 | 123.3 | 23.5 | 142 | 8.7 | 0.85 | 0.57  | 4054  | 44.41 | 386.17 | 8.4 | 15.6 |
| 285.0 | 157.9 | 25.0 | 92  | 8.7 | 0.67 | 0.60  | 4229  | 34.68 | 363.35 | 8.4 | 15.6 |
| 290.0 | 160.7 | 23.7 | 148 | 8.7 | 0.79 | 0.63  | 4505  | 34.07 | 343.27 | 8.4 | 15.6 |
| 295.0 | 240.0 | 22.0 | 135 | 8.7 | 0.64 | 0.65  | 4674  | 22.81 | 324.85 | 8.4 | 15.7 |
| 300.0 | 270.0 | 21.0 | 135 | 8.7 | 0.60 | 0.67  | 4824  | 20.28 | 308.30 | 8.4 | 15.7 |
| 305.0 | 263.3 | 19.6 | 135 | 8.7 | 0.60 | 0.69  | 4977  | 20.80 | 293.48 | 8.4 | 15.7 |
| 310.0 | 202.2 | 21.6 | 135 | 8.7 | 0.68 | 0.71  | 5178  | 27.07 | 280.42 | 8.4 | 15.7 |
| 315.0 | 233.8 | 24.7 | 150 | 8.7 | 0.69 | 0.73  | 5370  | 23.42 | 268.41 | 8.4 | 15.7 |
| 320.0 | 200.0 | 24.8 | 150 | 8.7 | 0.74 | 0.76  | 5595  | 27.38 | 257.65 | 8.4 | 15.8 |
| 325.0 | 181.8 | 24.1 | 150 | 8.8 | 0.75 | 0.79  | 5843  | 30.11 | 247.93 | 8.4 | 15.8 |
| 330.0 | 268.7 | 19.5 | 150 | 8.8 | 0.61 | 0.81  | 6010  | 20.38 | 238.60 | 8.4 | 15.8 |
| 335.0 | 183.7 | 20.0 | 150 | 8.8 | 0.72 | 0.83  | 6255  | 29.81 | 230.38 | 8.4 | 15.8 |
| 340.0 | 204.5 | 20.0 | 150 | 8.8 | 0.69 | 0.86  | 6475  | 26.77 | 222.67 | 8.4 | 15.8 |
| 345.0 | 158.2 | 20.0 | 150 | 8.8 | 0.76 | 0.89  | 6760  | 34.61 | 215.80 | 8.4 | 15.9 |
| 350.0 | 163.0 | 20.0 | 150 | 8.8 | 0.75 | 0.92  | 7036  | 33.59 | 209.39 | 8.4 | 15.9 |
| 355.0 | 111.2 | 20.0 | 150 | 8.8 | 0.85 | 0.96  | 7440  | 49.25 | 203.94 | 8.4 | 15.9 |
| 360.0 | 87.4  | 20.0 | 150 | 8.8 | 0.91 | 1.02  | 7955  | 62.66 | 199.29 | 8.4 | 15.9 |
| 365.0 | 120.0 | 24.0 | 145 | 8.8 | 0.86 | 1.06  | 8318  | 45.63 | 194.40 | 8.4 | 15.9 |
| 370.0 | 128.6 | 24.0 | 145 | 8.8 | 0.84 | 1.10  | 8656  | 42.58 | 189.71 | 8.4 | 16.0 |
| 375.0 | 104.7 | 24.0 | 145 | 8.8 | 0.89 | 1.15  | 9072  | 52.32 | 185.60 | 8.4 | 16.0 |
| 380.0 | 100.6 | 24.0 | 145 | 8.8 | 0.91 | 1.20  | 9505  | 54.45 | 181.79 | 8.4 | 16.0 |
| 385.0 | 98.4  | 24.0 | 145 | 8.8 | 0.91 | 1.25  | 9947  | 55.66 | 178.23 | 8.4 | 16.0 |
| 390.0 | 108.4 | 21.3 | 150 | 8.8 | 0.87 | 1.30  | 10362 | 50.49 | 174.72 | 8.4 | 16.0 |
| 395.0 | 111.1 | 25.0 | 150 | 8.8 | 0.90 | 1.34  | 10767 | 49.28 | 171.36 | 8.4 | 16.0 |
| 400.0 | 107.8 | 25.0 | 140 | 8.8 | 0.89 | 1.39  | 11156 | 50.80 | 168.22 | 8.4 | 16.1 |
| 405.0 | 107.1 | 25.0 | 140 | 8.8 | 0.89 | 1.43  | 11548 | 51.10 | 165.25 | 8.4 | 16.1 |
| 410.0 | 113.2 | 30.0 | 140 | 8.8 | 0.91 | 1.48  | 11919 | 48.36 | 162.36 | 8.4 | 16.1 |
| 415.0 | 76.4  | 30.0 | 144 | 8.8 | 1.04 | 1.54  | 12485 | 71.64 | 160.17 | 8.4 | 16.1 |
| 420.0 | 110.4 | 30.0 | 144 | 8.8 | 0.93 | 1.59  | 12876 | 49.58 | 157.56 | 8.4 | 16.1 |

| DEPTH | ROP   | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST  | CCOST  | PP  | FG   |
|-------|-------|------|-----|-----|------|-------|-------|--------|--------|-----|------|
| 425.0 | 100.0 | 30.0 | 145 | 8.8 | 0.96 | 1.64  | 13311 | 54.75  | 155.19 | 8.4 | 16.2 |
| 430.0 | 97.3  | 30.0 | 143 | 8.8 | 0.96 | 1.69  | 13752 | 56.27  | 152.96 | 8.4 | 16.2 |
| 435.0 | 67.7  | 30.0 | 143 | 8.9 | 1.06 | 1.76  | 14386 | 80.91  | 151.37 | 8.4 | 16.2 |
| 440.0 | 83.3  | 29.7 | 143 | 8.9 | 0.99 | 1.82  | 14901 | 65.70  | 149.53 | 8.4 | 16.2 |
| 445.0 | 67.2  | 30.9 | 143 | 8.9 | 1.07 | 1.90  | 15539 | 81.52  | 148.09 | 8.4 | 16.2 |
| 450.0 | 79.3  | 26.3 | 143 | 8.9 | 0.98 | 1.96  | 16080 | 69.05  | 146.46 | 8.4 | 16.2 |
| 455.0 | 98.4  | 30.0 | 140 | 8.9 | 0.94 | 2.01  | 16507 | 55.66  | 144.62 | 8.4 | 16.3 |
| 460.0 | 69.8  | 27.4 | 140 | 8.9 | 1.02 | 2.08  | 17109 | 78.48  | 143.31 | 8.4 | 16.3 |
| 465.0 | 91.4  | 31.0 | 140 | 8.9 | 0.97 | 2.14  | 17569 | 59.92  | 141.69 | 8.4 | 16.3 |
| 470.0 | 91.3  | 30.7 | 140 | 8.9 | 0.97 | 2.19  | 18029 | 59.94  | 140.13 | 8.4 | 16.3 |
| 475.0 | 127.7 | 31.8 | 140 | 8.9 | 0.88 | 2.23  | 18358 | 42.89  | 138.30 | 8.4 | 16.3 |
| 480.0 | 61.4  | 27.1 | 142 | 8.9 | 1.06 | 2.31  | 19051 | 89.12  | 137.40 | 8.4 | 16.4 |
| 485.0 | 75.3  | 26.9 | 142 | 8.9 | 1.00 | 2.38  | 19617 | 72.70  | 136.23 | 8.4 | 16.4 |
| 490.0 | 61.2  | 25.9 | 142 | 8.9 | 1.04 | 2.46  | 20313 | 89.43  | 135.40 | 8.4 | 16.4 |
| 495.0 | 92.8  | 27.6 | 140 | 8.9 | 0.94 | 2.52  | 20765 | 59.01  | 134.07 | 8.4 | 16.4 |
| 500.0 | 76.6  | 28.5 | 140 | 8.9 | 1.00 | 2.58  | 21314 | 71.48  | 133.00 | 8.4 | 16.4 |
| 505.0 | 62.9  | 27.9 | 140 | 8.9 | 1.05 | 2.66  | 21981 | 86.99  | 132.23 | 8.4 | 16.4 |
| 510.0 | 50.9  | 24.9 | 140 | 8.9 | 1.08 | 2.76  | 22807 | 107.66 | 131.82 | 8.4 | 16.5 |
| 515.0 | 52.6  | 31.3 | 140 | 8.9 | 1.14 | 2.85  | 23605 | 104.03 | 131.37 | 8.4 | 16.5 |
| 520.0 | 47.0  | 29.1 | 140 | 8.9 | 1.15 | 2.96  | 24499 | 116.50 | 131.13 | 8.4 | 16.5 |
| 525.0 | 38.9  | 26.8 | 150 | 8.9 | 1.20 | 3.09  | 25656 | 140.83 | 131.28 | 8.4 | 16.5 |
| 530.0 | 53.3  | 33.0 | 150 | 8.9 | 1.17 | 3.18  | 26501 | 102.81 | 130.84 | 8.4 | 16.5 |
| 535.0 | 74.4  | 33.0 | 160 | 8.9 | 1.09 | 3.25  | 27146 | 73.61  | 129.96 | 8.4 | 16.5 |
| 540.0 | 68.7  | 33.0 | 160 | 8.9 | 1.11 | 3.32  | 27845 | 79.69  | 129.21 | 8.4 | 16.6 |
| 545.0 | 59.4  | 33.0 | 160 | 8.9 | 1.16 | 3.41  | 28653 | 92.16  | 128.66 | 8.4 | 16.6 |
| 550.0 | 64.7  | 33.5 | 140 | 8.9 | 1.09 | 3.49  | 29302 | 84.56  | 128.01 | 8.4 | 16.6 |
| 555.0 | 59.3  | 36.0 | 141 | 8.9 | 1.15 | 3.57  | 30015 | 92.34  | 127.50 | 8.4 | 16.6 |
| 560.0 | 72.0  | 36.0 | 142 | 8.8 | 1.10 | 3.64  | 30607 | 76.04  | 126.77 | 8.4 | 16.6 |
| 565.0 | 53.1  | 37.0 | 142 | 8.8 | 1.20 | 3.73  | 31409 | 103.08 | 126.44 | 8.4 | 16.7 |
| 570.0 | 50.3  | 37.0 | 142 | 8.8 | 1.22 | 3.83  | 32256 | 108.89 | 126.19 | 8.4 | 16.7 |
| 575.0 | 54.2  | 38.0 | 136 | 8.7 | 1.21 | 3.92  | 33009 | 100.98 | 125.85 | 8.4 | 16.7 |
| 580.0 | 57.1  | 38.0 | 136 | 8.7 | 1.19 | 4.01  | 33723 | 95.81  | 125.45 | 8.4 | 16.7 |
| 585.0 | 54.9  | 38.0 | 136 | 8.7 | 1.20 | 4.10  | 34466 | 99.77  | 125.11 | 8.4 | 16.7 |
| 590.0 | 55.0  | 38.0 | 136 | 8.8 | 1.19 | 4.19  | 35208 | 99.55  | 124.77 | 8.4 | 16.7 |
| 595.0 | 45.1  | 38.0 | 135 | 8.8 | 1.25 | 4.31  | 36106 | 121.40 | 124.73 | 8.4 | 16.8 |
| 600.0 | 58.1  | 38.0 | 136 | 8.8 | 1.17 | 4.39  | 36808 | 94.23  | 124.34 | 8.4 | 16.8 |
| 605.0 | 54.2  | 38.0 | 136 | 8.8 | 1.19 | 4.48  | 37561 | 101.01 | 124.04 | 8.4 | 16.8 |
| 610.0 | 41.1  | 37.0 | 135 | 8.8 | 1.27 | 4.60  | 38546 | 133.21 | 124.16 | 8.4 | 16.8 |
| 615.0 | 43.0  | 38.0 | 135 | 8.8 | 1.26 | 4.72  | 39488 | 127.33 | 124.20 | 8.4 | 16.8 |
| 620.0 | 56.3  | 38.0 | 135 | 8.8 | 1.18 | 4.81  | 40208 | 97.33  | 123.87 | 8.4 | 16.8 |
| 625.0 | 41.9  | 35.3 | 140 | 8.8 | 1.26 | 4.93  | 41212 | 130.79 | 123.95 | 8.4 | 16.9 |
| 630.0 | 57.6  | 38.3 | 145 | 8.8 | 1.20 | 5.02  | 41967 | 95.05  | 123.61 | 8.4 | 16.9 |
| 635.0 | 51.7  | 36.1 | 145 | 8.8 | 1.21 | 5.11  | 42808 | 105.85 | 123.40 | 8.4 | 16.9 |
| 640.0 | 44.0  | 36.3 | 145 | 8.8 | 1.26 | 5.23  | 43796 | 124.40 | 123.42 | 8.4 | 16.9 |
| 645.0 | 45.7  | 36.6 | 135 | 8.8 | 1.23 | 5.34  | 44683 | 119.84 | 123.37 | 8.4 | 16.9 |
| 650.0 | 42.5  | 38.9 | 130 | 8.8 | 1.26 | 5.45  | 45600 | 128.73 | 123.44 | 8.4 | 16.9 |
| 655.0 | 47.7  | 38.0 | 130 | 8.8 | 1.22 | 5.56  | 46417 | 114.78 | 123.34 | 8.4 | 16.9 |
| 660.0 | 43.5  | 37.0 | 130 | 8.8 | 1.24 | 5.67  | 47314 | 125.93 | 123.37 | 8.4 | 17.0 |
| 665.0 | 36.1  | 38.0 | 125 | 8.8 | 1.29 | 5.81  | 48352 | 151.48 | 123.67 | 8.4 | 17.0 |
| 670.0 | 37.1  | 38.0 | 125 | 8.8 | 1.28 | 5.95  | 49362 | 147.52 | 123.93 | 8.4 | 17.0 |

| DEPTH | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS  | ICOST  | CCOST  | PP  | FG   |
|-------|------|------|-----|-----|------|-------|--------|--------|--------|-----|------|
| 675.0 | 33.1 | 38.0 | 125 | 8.8 | 1.32 | 6.10  | 50495  | 165.47 | 124.38 | 8.4 | 17.0 |
| 680.0 | 29.8 | 37.0 | 128 | 8.8 | 1.35 | 6.27  | 51783  | 183.59 | 125.00 | 8.4 | 17.0 |
| 685.0 | 29.7 | 37.0 | 135 | 8.8 | 1.37 | 6.43  | 53147  | 184.34 | 125.63 | 8.4 | 17.0 |
| 690.0 | 78.6 | 38.0 | 140 | 8.8 | 1.09 | 6.50  | 53681  | 69.65  | 125.05 | 8.4 | 17.1 |
| 695.0 | 37.0 | 38.0 | 140 | 8.8 | 1.32 | 6.63  | 54815  | 147.83 | 125.28 | 8.4 | 17.1 |
| 700.0 | 35.2 | 37.0 | 140 | 8.8 | 1.33 | 6.77  | 56010  | 155.73 | 125.59 | 8.4 | 17.1 |
| 705.0 | 34.8 | 35.0 | 137 | 8.8 | 1.30 | 6.92  | 57190  | 157.25 | 125.91 | 8.4 | 17.1 |
| 710.0 | 55.2 | 35.0 | 137 | 8.8 | 1.16 | 7.01  | 57935  | 99.16  | 125.64 | 8.4 | 17.1 |
| 715.0 | 47.2 | 35.0 | 137 | 8.8 | 1.21 | 7.11  | 58805  | 115.89 | 125.55 | 8.4 | 17.1 |
| 720.0 | 34.8 | 35.0 | 137 | 8.8 | 1.30 | 7.26  | 59985  | 157.25 | 125.86 | 8.4 | 17.2 |
| 725.0 | 38.5 | 35.0 | 137 | 8.8 | 1.27 | 7.39  | 61051  | 142.05 | 126.01 | 8.4 | 17.2 |
| 730.0 | 38.5 | 38.0 | 150 | 8.8 | 1.33 | 7.52  | 62221  | 142.35 | 126.17 | 8.4 | 17.2 |
| 735.0 | 38.1 | 38.0 | 150 | 8.8 | 1.33 | 7.65  | 63404  | 143.87 | 126.34 | 8.4 | 17.2 |
| 740.0 | 46.8 | 38.0 | 150 | 8.8 | 1.27 | 7.76  | 64366  | 117.10 | 126.25 | 8.4 | 17.2 |
| 745.0 | 30.9 | 38.0 | 150 | 8.8 | 1.40 | 7.92  | 65821  | 177.03 | 126.72 | 8.4 | 17.2 |
| 750.0 | 28.0 | 38.0 | 150 | 8.8 | 1.43 | 8.10  | 67426  | 195.28 | 127.35 | 8.4 | 17.2 |
| 755.0 | 36.7 | 38.0 | 150 | 8.8 | 1.34 | 8.23  | 68651  | 149.04 | 127.55 | 8.4 | 17.3 |
| 760.0 | 35.3 | 38.0 | 150 | 8.8 | 1.36 | 8.37  | 69926  | 155.13 | 127.80 | 8.4 | 17.3 |
| 765.0 | 32.8 | 38.0 | 150 | 8.8 | 1.38 | 8.53  | 71296  | 166.68 | 128.15 | 8.4 | 17.3 |
| 770.0 | 28.4 | 38.0 | 150 | 8.8 | 1.42 | 8.70  | 72881  | 192.84 | 128.73 | 8.4 | 17.3 |
| 775.0 | 22.1 | 38.0 | 150 | 8.8 | 1.50 | 8.93  | 74916  | 247.59 | 129.78 | 8.4 | 17.3 |
| 780.0 | 20.9 | 38.0 | 150 | 8.7 | 1.54 | 9.17  | 77066  | 261.58 | 130.93 | 8.4 | 17.3 |
| 785.0 | 15.7 | 38.0 | 150 | 8.7 | 1.63 | 9.49  | 79929  | 348.27 | 132.81 | 8.4 | 17.4 |
| 790.0 | 23.3 | 38.0 | 150 | 8.7 | 1.50 | 9.70  | 81859  | 234.82 | 133.69 | 8.4 | 17.4 |
| 795.0 | 25.0 | 38.0 | 150 | 8.7 | 1.48 | 9.90  | 83656  | 218.70 | 134.41 | 8.4 | 17.4 |
| 800.0 | 15.3 | 38.0 | 150 | 8.7 | 1.64 | 10.23 | 86599  | 358.00 | 136.30 | 8.4 | 17.4 |
| 805.0 | 14.6 | 38.0 | 150 | 8.7 | 1.65 | 10.57 | 89684  | 375.34 | 138.30 | 8.4 | 17.4 |
| 810.0 | 9.8  | 38.0 | 150 | 8.7 | 1.77 | 11.08 | 94259  | 556.62 | 141.78 | 8.4 | 17.4 |
| 815.0 | 11.0 | 45.0 | 150 | 8.7 | 1.82 | 11.53 | 98364  | 499.44 | 144.72 | 8.4 | 17.4 |
| 820.0 | 11.7 | 45.0 | 150 | 8.7 | 1.80 | 11.96 | 102226 | 469.94 | 147.38 | 8.4 | 17.5 |
| 825.0 | 8.2  | 43.0 | 150 | 8.7 | 1.90 | 12.57 | 107714 | 667.68 | 151.60 | 8.4 | 17.5 |

|             |         |             |        |           |               |
|-------------|---------|-------------|--------|-----------|---------------|
| BIT NUMBER  | 3       | IADC CODE   | 114    | INTERVAL  | 825.0- 1271.0 |
| HTC X3A     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16      |
| COST        | 2201.00 | TRIP TIME   | 4.7    | BIT RUN   | 446.0         |
| TOTAL HOURS | 18.77   | TOTAL TURNS | 166290 | CONDITION | T6 R8 G0.063  |

| DEPTH | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST  | CCOST  | PP  | FG   |
|-------|------|------|-----|-----|------|-------|-------|--------|--------|-----|------|
| 826.0 | 14.0 | 10.0 | 117 | 9.0 | 1.21 | 0.07  | 502   | 390    | 28324  | 8.4 | 17.5 |
| 827.0 | 22.9 | 20.0 | 121 | 9.0 | 1.29 | 0.11  | 818   | 239    | 14281  | 8.4 | 17.5 |
| 828.0 | 42.9 | 30.0 | 129 | 9.0 | 1.26 | 0.14  | 999   | 128    | 9563   | 8.4 | 17.5 |
| 829.0 | 41.4 | 30.0 | 160 | 9.0 | 1.34 | 0.16  | 1230  | 132    | 7206   | 8.4 | 17.5 |
| 830.0 | 36.7 | 30.0 | 163 | 9.0 | 1.39 | 0.19  | 1497  | 149    | 5794   | 8.4 | 17.5 |
| 831.0 | 43.9 | 30.0 | 163 | 9.0 | 1.33 | 0.21  | 1720  | 125    | 4849   | 8.4 | 17.5 |
| 832.0 | 26.7 | 30.0 | 159 | 9.0 | 1.48 | 0.25  | 2076  | 205    | 4186   | 8.4 | 17.5 |
| 833.0 | 38.1 | 30.0 | 156 | 9.0 | 1.36 | 0.28  | 2322  | 144    | 3681   | 8.4 | 17.5 |
| 834.0 | 39.1 | 30.0 | 156 | 9.0 | 1.35 | 0.30  | 2562  | 140    | 3287   | 8.4 | 17.5 |
| 835.0 | 37.1 | 30.0 | 156 | 9.0 | 1.37 | 0.33  | 2814  | 148    | 2973   | 8.4 | 17.5 |
| 836.0 | 24.0 | 30.0 | 157 | 9.0 | 1.51 | 0.37  | 3208  | 228    | 2724   | 8.4 | 17.5 |
| 837.0 | 26.7 | 30.0 | 157 | 9.0 | 1.47 | 0.41  | 3560  | 205    | 2514   | 8.4 | 17.5 |
| 838.0 | 36.0 | 30.0 | 157 | 9.0 | 1.38 | 0.44  | 3822  | 152    | 2332   | 8.4 | 17.5 |
| 839.0 | 37.9 | 30.0 | 157 | 9.0 | 1.36 | 0.46  | 4071  | 144    | 2176   | 8.4 | 17.5 |
| 840.0 | 28.8 | 30.0 | 157 | 9.0 | 1.45 | 0.50  | 4397  | 190    | 2044   | 8.4 | 17.5 |
| 841.0 | 40.0 | 30.0 | 156 | 9.0 | 1.34 | 0.52  | 4631  | 137    | 1924   | 8.4 | 17.5 |
| 842.0 | 25.5 | 30.0 | 157 | 9.0 | 1.49 | 0.56  | 4999  | 214    | 1824   | 8.4 | 17.5 |
| 843.0 | 33.0 | 30.0 | 157 | 9.0 | 1.41 | 0.59  | 5284  | 166    | 1732   | 8.4 | 17.5 |
| 844.0 | 41.9 | 29.5 | 153 | 9.0 | 1.32 | 0.62  | 5503  | 131    | 1647   | 8.4 | 17.5 |
| 845.0 | 15.7 | 27.3 | 155 | 9.0 | 1.60 | 0.68  | 6096  | 348    | 1582   | 8.4 | 17.5 |
| 846.0 | 35.6 | 28.3 | 160 | 9.0 | 1.37 | 0.71  | 6364  | 154    | 1514   | 8.4 | 17.5 |
| 847.0 | 42.4 | 28.5 | 160 | 9.0 | 1.31 | 0.73  | 6591  | 129    | 1451   | 8.4 | 17.5 |
| 848.0 | 27.5 | 27.7 | 160 | 9.0 | 1.44 | 0.77  | 6940  | 199    | 1397   | 8.4 | 17.5 |
| 849.0 | 24.8 | 27.7 | 160 | 9.0 | 1.47 | 0.81  | 7326  | 221    | 1348   | 8.4 | 17.5 |
| 850.0 | 25.7 | 28.6 | 145 | 9.0 | 1.44 | 0.85  | 7664  | 213    | 1303   | 8.4 | 17.5 |
| 851.0 | 18.3 | 29.5 | 137 | 9.0 | 1.54 | 0.90  | 8114  | 300    | 1264   | 8.4 | 17.5 |
| 852.0 | 25.2 | 27.7 | 138 | 9.0 | 1.42 | 0.94  | 8442  | 217    | 1225   | 8.4 | 17.5 |
| 853.0 | 27.1 | 28.6 | 138 | 9.0 | 1.41 | 0.98  | 8748  | 202    | 1189   | 8.4 | 17.5 |
| 854.0 | 29.0 | 27.4 | 138 | 9.0 | 1.37 | 1.01  | 9033  | 189    | 1154   | 8.4 | 17.6 |
| 855.0 | 20.5 | 27.7 | 140 | 9.0 | 1.49 | 1.06  | 9444  | 268    | 1125   | 8.4 | 17.6 |
| 856.0 | 29.3 | 27.9 | 137 | 9.0 | 1.37 | 1.09  | 9725  | 187    | 1094   | 8.4 | 17.6 |
| 857.0 | 33.6 | 26.8 | 142 | 9.0 | 1.33 | 1.12  | 9979  | 163    | 1065   | 8.4 | 17.6 |
| 858.0 | 28.3 | 27.8 | 149 | 9.0 | 1.41 | 1.16  | 10295 | 193    | 1039   | 8.4 | 17.6 |
| 859.0 | 31.0 | 28.7 | 149 | 9.0 | 1.39 | 1.19  | 10583 | 176    | 1014   | 8.4 | 17.6 |
| 860.0 | 29.5 | 33.0 | 148 | 9.0 | 1.46 | 1.23  | 10885 | 185.54 | 989.86 | 8.4 | 17.6 |
| 861.0 | 31.6 | 31.5 | 149 | 9.0 | 1.42 | 1.26  | 11168 | 173.38 | 967.18 | 8.4 | 17.6 |
| 862.0 | 27.3 | 30.0 | 149 | 9.0 | 1.45 | 1.29  | 11496 | 200.75 | 946.47 | 8.4 | 17.6 |
| 863.0 | 23.2 | 30.0 | 149 | 9.0 | 1.50 | 1.34  | 11879 | 235.73 | 927.76 | 8.4 | 17.6 |
| 864.0 | 16.1 | 30.0 | 144 | 9.0 | 1.61 | 1.40  | 12416 | 340.67 | 912.71 | 8.4 | 17.6 |
| 865.0 | 36.4 | 30.0 | 149 | 9.0 | 1.36 | 1.43  | 12662 | 150.56 | 893.65 | 8.4 | 17.6 |
| 866.0 | 24.7 | 30.0 | 150 | 9.0 | 1.48 | 1.47  | 13027 | 222.04 | 877.27 | 8.4 | 17.6 |
| 867.0 | 26.7 | 30.0 | 150 | 9.0 | 1.46 | 1.51  | 13365 | 205.31 | 861.27 | 8.4 | 17.6 |
| 868.0 | 30.3 | 30.0 | 151 | 9.0 | 1.42 | 1.54  | 13664 | 180.98 | 845.45 | 8.4 | 17.6 |



| DEPTH | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST  | CCOST  | PP  | FC   |
|-------|------|------|-----|-----|------|-------|-------|--------|--------|-----|------|
| 869.0 | 23.8 | 30.0 | 151 | 9.0 | 1.50 | 1.58  | 14044 | 229.65 | 831.46 | 8.4 | 17.6 |
| 870.0 | 25.7 | 30.0 | 151 | 9.0 | 1.47 | 1.62  | 14396 | 212.92 | 817.71 | 8.4 | 17.6 |
| 871.0 | 22.1 | 30.0 | 151 | 9.0 | 1.52 | 1.66  | 14806 | 247.90 | 805.33 | 8.4 | 17.6 |
| 872.0 | 21.4 | 30.0 | 151 | 9.0 | 1.53 | 1.71  | 15228 | 255.50 | 793.63 | 8.4 | 17.6 |
| 873.0 | 40.4 | 30.0 | 150 | 9.0 | 1.33 | 1.74  | 15450 | 135.35 | 779.91 | 8.4 | 17.6 |
| 874.0 | 27.9 | 30.0 | 146 | 9.0 | 1.44 | 1.77  | 15765 | 196.19 | 768.00 | 8.4 | 17.6 |
| 875.0 | 36.4 | 30.0 | 150 | 9.0 | 1.36 | 1.80  | 16012 | 150.56 | 755.65 | 8.4 | 17.6 |
| 876.0 | 36.7 | 30.0 | 150 | 9.0 | 1.36 | 1.83  | 16257 | 149.04 | 743.76 | 8.4 | 17.6 |
| 877.0 | 39.1 | 30.0 | 150 | 9.0 | 1.34 | 1.85  | 16486 | 139.92 | 732.15 | 8.4 | 17.6 |
| 878.0 | 31.6 | 30.0 | 150 | 9.0 | 1.41 | 1.88  | 16771 | 173.38 | 721.60 | 8.4 | 17.6 |
| 879.0 | 34.0 | 30.0 | 150 | 9.1 | 1.37 | 1.91  | 17036 | 161.21 | 711.22 | 8.4 | 17.6 |
| 880.0 | 29.3 | 30.0 | 150 | 9.1 | 1.41 | 1.95  | 17344 | 187.06 | 701.69 | 8.4 | 17.6 |
| 881.0 | 36.7 | 30.0 | 149 | 9.1 | 1.34 | 1.97  | 17587 | 149.04 | 691.83 | 8.4 | 17.6 |
| 882.0 | 28.3 | 30.0 | 148 | 9.1 | 1.42 | 2.01  | 17900 | 193.15 | 683.08 | 8.4 | 17.6 |
| 883.0 | 24.7 | 30.0 | 148 | 9.1 | 1.46 | 2.05  | 18261 | 222.04 | 675.13 | 8.4 | 17.6 |
| 884.0 | 34.3 | 30.0 | 148 | 9.1 | 1.36 | 2.08  | 18521 | 159.69 | 666.39 | 8.4 | 17.6 |
| 885.0 | 10.3 | 30.0 | 149 | 9.1 | 1.74 | 2.18  | 19389 | 530.77 | 664.13 | 8.4 | 17.6 |
| 886.0 | 31.0 | 30.0 | 149 | 9.1 | 1.39 | 2.21  | 19677 | 176.42 | 656.14 | 8.4 | 17.6 |
| 887.0 | 32.1 | 30.0 | 149 | 9.1 | 1.38 | 2.24  | 19955 | 170.33 | 648.30 | 8.4 | 17.6 |
| 888.0 | 30.5 | 30.0 | 149 | 9.1 | 1.40 | 2.27  | 20249 | 179.46 | 640.86 | 8.4 | 17.6 |
| 889.0 | 27.9 | 30.0 | 149 | 9.1 | 1.43 | 2.31  | 20570 | 196.19 | 633.91 | 8.4 | 17.6 |
| 890.0 | 32.7 | 30.0 | 149 | 9.1 | 1.38 | 2.34  | 20844 | 167.29 | 626.73 | 8.4 | 17.7 |
| 891.0 | 21.6 | 30.0 | 149 | 9.1 | 1.51 | 2.39  | 21258 | 253.98 | 621.08 | 8.4 | 17.7 |
| 892.0 | 25.5 | 30.0 | 149 | 9.1 | 1.45 | 2.42  | 21608 | 214.44 | 615.01 | 8.4 | 17.7 |
| 893.0 | 38.7 | 30.0 | 150 | 9.1 | 1.33 | 2.45  | 21840 | 141.44 | 608.05 | 8.4 | 17.7 |
| 894.0 | 33.3 | 30.0 | 150 | 9.1 | 1.37 | 2.48  | 22110 | 164.25 | 601.62 | 8.4 | 17.7 |
| 895.0 | 28.8 | 30.0 | 151 | 9.1 | 1.42 | 2.51  | 22424 | 190.10 | 595.74 | 8.4 | 17.7 |
| 896.0 | 27.5 | 30.0 | 150 | 9.1 | 1.43 | 2.55  | 22752 | 199.23 | 590.15 | 8.4 | 17.7 |
| 897.0 | 29.8 | 30.0 | 150 | 9.1 | 1.41 | 2.58  | 23055 | 184.02 | 584.51 | 8.4 | 17.7 |
| 898.0 | 31.3 | 30.0 | 150 | 9.1 | 1.39 | 2.62  | 23343 | 174.90 | 578.90 | 8.4 | 17.7 |
| 899.0 | 24.0 | 30.0 | 150 | 9.1 | 1.48 | 2.66  | 23719 | 228.13 | 574.16 | 8.4 | 17.7 |
| 900.0 | 30.5 | 30.0 | 151 | 9.1 | 1.40 | 2.69  | 24016 | 179.46 | 568.90 | 8.4 | 17.7 |
| 901.0 | 28.6 | 30.0 | 146 | 9.1 | 1.41 | 2.73  | 24322 | 191.63 | 563.94 | 8.4 | 17.7 |
| 902.0 | 27.7 | 30.0 | 149 | 9.1 | 1.43 | 2.76  | 24646 | 197.71 | 559.18 | 8.4 | 17.7 |
| 903.0 | 21.3 | 30.0 | 151 | 9.1 | 1.51 | 2.81  | 25070 | 257.02 | 555.31 | 8.4 | 17.7 |
| 904.0 | 28.6 | 30.0 | 151 | 9.1 | 1.42 | 2.84  | 25387 | 191.63 | 550.70 | 8.4 | 17.7 |
| 905.0 | 21.8 | 30.0 | 151 | 9.1 | 1.51 | 2.89  | 25801 | 250.94 | 546.96 | 8.4 | 17.7 |
| 906.0 | 26.7 | 30.0 | 150 | 9.1 | 1.44 | 2.93  | 26139 | 205.31 | 542.74 | 8.4 | 17.7 |
| 907.0 | 22.8 | 30.0 | 150 | 9.1 | 1.49 | 2.97  | 26534 | 240.29 | 539.05 | 8.4 | 17.7 |
| 908.0 | 20.0 | 30.0 | 150 | 9.1 | 1.53 | 3.02  | 26984 | 273.75 | 535.85 | 8.4 | 17.7 |
| 909.0 | 25.7 | 30.0 | 150 | 9.1 | 1.45 | 3.06  | 27333 | 212.92 | 532.01 | 8.4 | 17.7 |
| 910.0 | 14.8 | 30.0 | 151 | 9.1 | 1.63 | 3.13  | 27945 | 371.08 | 530.11 | 8.4 | 17.7 |
| 911.0 | 21.1 | 30.0 | 142 | 9.1 | 1.50 | 3.18  | 28350 | 260.06 | 526.97 | 8.4 | 17.7 |
| 912.0 | 19.6 | 30.0 | 150 | 9.1 | 1.54 | 3.23  | 28810 | 279.83 | 524.13 | 8.4 | 17.7 |
| 913.0 | 19.9 | 30.0 | 150 | 9.1 | 1.53 | 3.28  | 29262 | 275.27 | 521.31 | 8.4 | 17.7 |
| 914.0 | 33.6 | 30.0 | 150 | 9.1 | 1.37 | 3.31  | 29529 | 162.73 | 517.28 | 8.4 | 17.7 |
| 915.0 | 29.8 | 30.0 | 150 | 9.1 | 1.41 | 3.34  | 29832 | 184.02 | 513.57 | 8.4 | 17.7 |
| 916.0 | 33.6 | 30.0 | 150 | 9.1 | 1.37 | 3.37  | 30100 | 162.73 | 509.72 | 8.4 | 17.7 |
| 917.0 | 31.0 | 30.0 | 150 | 9.1 | 1.40 | 3.40  | 30390 | 176.42 | 506.10 | 8.4 | 17.7 |
| 918.0 | 20.3 | 30.0 | 151 | 9.1 | 1.53 | 3.45  | 30834 | 269.19 | 503.55 | 8.4 | 17.7 |

| DEPTH | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST  | CCOST  | PP  | FG   |
|-------|------|------|-----|-----|------|-------|-------|--------|--------|-----|------|
| 919.0 | 34.6 | 30.0 | 150 | 9.1 | 1.36 | 3.48  | 31095 | 158.17 | 499.87 | 8.4 | 17.7 |
| 920.0 | 32.1 | 30.0 | 151 | 9.1 | 1.39 | 3.51  | 31376 | 170.33 | 496.41 | 8.4 | 17.7 |
| 921.0 | 14.1 | 30.0 | 127 | 9.1 | 1.59 | 3.58  | 31913 | 387.81 | 495.27 | 8.4 | 17.7 |
| 922.0 | 32.4 | 30.0 | 148 | 9.1 | 1.38 | 3.61  | 32186 | 168.81 | 491.91 | 8.4 | 17.7 |
| 923.0 | 27.5 | 30.0 | 149 | 9.1 | 1.43 | 3.65  | 32512 | 199.23 | 488.92 | 8.4 | 17.7 |
| 924.0 | 24.7 | 30.0 | 149 | 9.1 | 1.47 | 3.69  | 32874 | 222.04 | 486.23 | 8.4 | 17.7 |
| 925.0 | 24.3 | 30.0 | 148 | 9.1 | 1.47 | 3.73  | 33240 | 225.08 | 483.62 | 8.4 | 17.7 |
| 926.0 | 25.5 | 30.0 | 149 | 9.1 | 1.45 | 3.77  | 33590 | 214.44 | 480.95 | 8.4 | 17.8 |
| 927.0 | 24.3 | 30.0 | 148 | 9.1 | 1.47 | 3.81  | 33956 | 225.08 | 478.44 | 8.4 | 17.8 |
| 928.0 | 27.1 | 30.0 | 149 | 9.1 | 1.44 | 3.85  | 34285 | 202.27 | 475.76 | 8.4 | 17.8 |
| 929.0 | 37.5 | 30.0 | 149 | 9.1 | 1.34 | 3.88  | 34523 | 146.00 | 472.59 | 8.4 | 17.8 |
| 930.0 | 21.3 | 30.0 | 148 | 9.1 | 1.51 | 3.92  | 34940 | 257.02 | 470.54 | 8.4 | 17.8 |
| 931.0 | 21.6 | 30.0 | 143 | 9.1 | 1.50 | 3.97  | 35338 | 253.98 | 468.49 | 8.4 | 17.8 |
| 932.0 | 27.5 | 30.0 | 149 | 9.1 | 1.43 | 4.00  | 35664 | 199.23 | 465.98 | 8.4 | 17.8 |
| 933.0 | 23.4 | 30.0 | 150 | 9.1 | 1.48 | 4.05  | 36049 | 234.21 | 463.83 | 8.4 | 17.8 |
| 934.0 | 23.4 | 30.0 | 151 | 9.1 | 1.49 | 4.09  | 36436 | 234.21 | 461.72 | 8.4 | 17.8 |
| 935.0 | 22.1 | 30.0 | 151 | 9.1 | 1.50 | 4.14  | 36846 | 247.90 | 459.78 | 8.4 | 17.8 |
| 936.0 | 24.3 | 30.0 | 150 | 9.1 | 1.47 | 4.18  | 37217 | 225.08 | 457.67 | 8.4 | 17.8 |
| 937.0 | 16.5 | 30.0 | 150 | 9.0 | 1.61 | 4.24  | 37762 | 331.54 | 456.54 | 8.4 | 17.8 |
| 938.0 | 20.5 | 30.0 | 150 | 9.0 | 1.54 | 4.29  | 38202 | 267.67 | 454.87 | 8.4 | 17.8 |
| 939.0 | 13.2 | 30.0 | 141 | 9.0 | 1.66 | 4.36  | 38843 | 413.67 | 454.51 | 8.4 | 17.8 |
| 940.0 | 21.1 | 30.0 | 142 | 9.0 | 1.52 | 4.41  | 39247 | 260.06 | 452.82 | 8.4 | 17.8 |
| 941.0 | 22.5 | 30.0 | 151 | 9.0 | 1.51 | 4.45  | 39649 | 243.33 | 451.01 | 8.4 | 17.8 |
| 942.0 | 31.0 | 30.0 | 151 | 9.0 | 1.41 | 4.49  | 39941 | 176.42 | 448.66 | 8.4 | 17.8 |
| 943.0 | 31.3 | 30.0 | 151 | 9.0 | 1.41 | 4.52  | 40230 | 174.90 | 446.34 | 8.4 | 17.8 |
| 944.0 | 29.0 | 30.0 | 151 | 9.0 | 1.43 | 4.55  | 40542 | 188.58 | 444.18 | 8.4 | 17.8 |
| 945.0 | 36.0 | 30.0 | 151 | 9.0 | 1.37 | 4.58  | 40794 | 152.08 | 441.74 | 8.4 | 17.8 |
| 946.0 | 35.3 | 30.0 | 151 | 9.0 | 1.37 | 4.61  | 41051 | 155.13 | 439.37 | 8.4 | 17.8 |
| 947.0 | 23.7 | 30.0 | 151 | 9.0 | 1.50 | 4.65  | 41434 | 231.17 | 437.67 | 8.4 | 17.8 |
| 948.0 | 27.7 | 30.0 | 151 | 9.0 | 1.45 | 4.69  | 41761 | 197.71 | 435.72 | 8.4 | 17.8 |
| 949.0 | 13.7 | 30.0 | 145 | 9.0 | 1.66 | 4.76  | 42394 | 398.46 | 435.42 | 8.4 | 17.8 |
| 950.0 | 31.0 | 30.0 | 146 | 9.0 | 1.40 | 4.79  | 42676 | 176.42 | 433.34 | 8.4 | 17.8 |
| 951.0 | 26.1 | 30.0 | 148 | 9.0 | 1.46 | 4.83  | 43017 | 209.88 | 431.57 | 8.4 | 17.8 |
| 952.0 | 25.2 | 30.0 | 148 | 9.0 | 1.47 | 4.87  | 43369 | 217.48 | 429.89 | 8.4 | 17.8 |
| 953.0 | 26.7 | 30.0 | 148 | 9.0 | 1.46 | 4.91  | 43703 | 205.31 | 428.13 | 8.4 | 17.8 |
| 954.0 | 26.9 | 30.0 | 148 | 9.0 | 1.45 | 4.94  | 44034 | 203.79 | 426.39 | 8.4 | 17.8 |
| 955.0 | 22.8 | 30.0 | 148 | 9.0 | 1.51 | 4.99  | 44424 | 240.29 | 424.96 | 8.4 | 17.8 |
| 956.0 | 21.4 | 30.0 | 148 | 9.0 | 1.52 | 5.04  | 44838 | 255.50 | 423.67 | 8.4 | 17.8 |
| 957.0 | 32.4 | 30.0 | 148 | 9.0 | 1.39 | 5.07  | 45112 | 168.81 | 421.74 | 8.4 | 17.8 |
| 958.0 | 14.0 | 30.0 | 141 | 9.0 | 1.64 | 5.14  | 45718 | 392.38 | 421.51 | 8.4 | 17.8 |
| 959.0 | 29.8 | 30.0 | 143 | 9.0 | 1.41 | 5.17  | 46007 | 184.02 | 419.74 | 8.4 | 17.8 |
| 960.0 | 32.4 | 30.0 | 147 | 9.0 | 1.39 | 5.20  | 46279 | 168.81 | 417.88 | 8.4 | 17.8 |
| 961.0 | 25.0 | 30.0 | 147 | 9.0 | 1.47 | 5.24  | 46633 | 219.00 | 416.42 | 8.4 | 17.8 |
| 962.0 | 27.7 | 30.0 | 147 | 9.0 | 1.44 | 5.28  | 46952 | 197.71 | 414.82 | 8.4 | 17.8 |
| 963.0 | 34.0 | 30.0 | 147 | 9.0 | 1.38 | 5.31  | 47211 | 161.21 | 412.99 | 8.4 | 17.8 |
| 964.0 | 34.3 | 30.0 | 147 | 9.0 | 1.37 | 5.34  | 47469 | 159.69 | 411.16 | 8.4 | 17.9 |
| 965.0 | 35.6 | 30.0 | 147 | 9.0 | 1.36 | 5.36  | 47717 | 153.60 | 409.33 | 8.4 | 17.9 |
| 966.0 | 34.0 | 30.0 | 148 | 9.0 | 1.38 | 5.39  | 47977 | 161.21 | 407.57 | 8.4 | 17.9 |
| 967.0 | 37.9 | 30.0 | 147 | 9.0 | 1.34 | 5.42  | 48211 | 144.48 | 405.71 | 8.4 | 17.9 |
| 968.0 | 18.1 | 30.0 | 131 | 9.0 | 1.54 | 5.48  | 48644 | 302.65 | 404.99 | 8.4 | 17.9 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST  | CCOST  | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|--------|--------|-----|------|
| 969.0  | 35.6 | 30.0 | 133 | 9.0 | 1.33 | 5.50  | 48868 | 153.60 | 403.25 | 8.4 | 17.9 |
| 970.0  | 36.4 | 30.0 | 148 | 9.0 | 1.36 | 5.53  | 49112 | 150.56 | 401.50 | 8.4 | 17.9 |
| 971.0  | 38.3 | 30.0 | 149 | 9.0 | 1.34 | 5.56  | 49345 | 142.96 | 399.73 | 8.4 | 17.9 |
| 972.0  | 36.4 | 30.0 | 148 | 9.0 | 1.36 | 5.59  | 49590 | 150.56 | 398.04 | 8.4 | 17.9 |
| 973.0  | 32.1 | 30.0 | 149 | 9.0 | 1.40 | 5.62  | 49867 | 170.33 | 396.50 | 8.4 | 17.9 |
| 974.0  | 33.6 | 30.0 | 148 | 9.0 | 1.38 | 5.65  | 50132 | 162.73 | 394.93 | 8.4 | 17.9 |
| 975.0  | 31.0 | 30.0 | 149 | 9.0 | 1.41 | 5.68  | 50419 | 176.42 | 393.47 | 8.4 | 17.9 |
| 976.0  | 27.5 | 30.0 | 149 | 9.0 | 1.45 | 5.71  | 50745 | 199.23 | 392.19 | 8.4 | 17.9 |
| 977.0  | 11.6 | 30.0 | 120 | 9.0 | 1.65 | 5.80  | 51367 | 471.46 | 392.71 | 8.4 | 17.9 |
| 978.0  | 25.9 | 30.0 | 146 | 9.0 | 1.46 | 5.84  | 51706 | 211.40 | 391.52 | 8.4 | 17.9 |
| 979.0  | 26.1 | 32.0 | 147 | 9.0 | 1.49 | 5.88  | 52044 | 209.88 | 390.34 | 8.4 | 17.9 |
| 980.0  | 31.6 | 32.0 | 147 | 9.0 | 1.43 | 5.91  | 52324 | 173.38 | 388.94 | 8.4 | 17.9 |
| 981.0  | 27.3 | 32.0 | 148 | 9.0 | 1.47 | 5.95  | 52648 | 200.75 | 387.74 | 8.4 | 17.9 |
| 982.0  | 19.9 | 32.0 | 148 | 9.0 | 1.58 | 6.00  | 53094 | 275.27 | 387.02 | 8.4 | 17.9 |
| 983.0  | 25.5 | 32.0 | 148 | 9.0 | 1.50 | 6.04  | 53441 | 214.44 | 385.93 | 8.4 | 17.9 |
| 984.0  | 14.7 | 32.0 | 147 | 9.0 | 1.67 | 6.10  | 54041 | 372.60 | 385.85 | 8.4 | 17.9 |
| 985.0  | 25.7 | 32.0 | 147 | 9.0 | 1.49 | 6.14  | 54384 | 212.92 | 384.76 | 8.4 | 17.9 |
| 986.0  | 13.6 | 32.0 | 145 | 9.0 | 1.69 | 6.22  | 55025 | 403.02 | 384.88 | 8.4 | 17.9 |
| 987.0  | 22.6 | 32.0 | 147 | 9.0 | 1.53 | 6.26  | 55416 | 241.81 | 383.99 | 8.4 | 17.9 |
| 988.0  | 29.5 | 32.0 | 148 | 9.0 | 1.45 | 6.29  | 55716 | 185.54 | 382.78 | 8.4 | 17.9 |
| 989.0  | 25.7 | 32.0 | 148 | 9.0 | 1.49 | 6.33  | 56061 | 212.92 | 381.74 | 8.4 | 17.9 |
| 990.0  | 24.2 | 32.0 | 148 | 9.0 | 1.52 | 6.37  | 56430 | 226.60 | 380.80 | 8.4 | 17.9 |
| 991.0  | 24.8 | 32.0 | 148 | 9.0 | 1.51 | 6.41  | 56788 | 220.52 | 379.84 | 8.4 | 17.9 |
| 992.0  | 15.7 | 32.0 | 148 | 9.0 | 1.65 | 6.48  | 57353 | 348.27 | 379.65 | 8.4 | 17.9 |
| 993.0  | 21.3 | 32.0 | 147 | 9.0 | 1.55 | 6.53  | 57766 | 257.02 | 378.92 | 8.4 | 17.9 |
| 994.0  | 22.2 | 32.0 | 148 | 9.0 | 1.54 | 6.57  | 58165 | 246.38 | 378.13 | 8.4 | 17.9 |
| 995.0  | 31.9 | 32.0 | 148 | 9.0 | 1.43 | 6.60  | 58444 | 171.85 | 376.92 | 8.4 | 17.9 |
| 996.0  | 24.8 | 32.0 | 133 | 9.0 | 1.47 | 6.64  | 58765 | 220.52 | 376.00 | 8.4 | 17.9 |
| 997.0  | 27.5 | 32.0 | 149 | 9.0 | 1.48 | 6.68  | 59091 | 199.23 | 374.98 | 8.4 | 17.9 |
| 998.0  | 25.7 | 32.0 | 149 | 9.0 | 1.50 | 6.72  | 59439 | 212.92 | 374.04 | 8.4 | 17.9 |
| 999.0  | 23.4 | 32.0 | 150 | 9.0 | 1.53 | 6.76  | 59823 | 234.21 | 373.24 | 8.4 | 17.9 |
| 1000.0 | 24.3 | 32.0 | 149 | 9.0 | 1.52 | 6.80  | 60192 | 225.08 | 372.39 | 8.4 | 17.9 |
| 1001.0 | 22.9 | 32.0 | 150 | 9.0 | 1.53 | 6.84  | 60584 | 238.77 | 371.63 | 8.4 | 17.9 |
| 1002.0 | 17.4 | 32.0 | 150 | 9.0 | 1.62 | 6.90  | 61102 | 314.81 | 371.31 | 8.4 | 18.0 |
| 1003.0 | 18.2 | 32.0 | 150 | 9.0 | 1.61 | 6.96  | 61597 | 301.13 | 370.92 | 8.4 | 18.0 |
| 1004.0 | 22.4 | 32.0 | 150 | 9.0 | 1.54 | 7.00  | 61998 | 244.85 | 370.21 | 8.4 | 18.0 |
| 1005.0 | 22.8 | 32.0 | 132 | 9.0 | 1.50 | 7.05  | 62346 | 240.29 | 369.49 | 8.4 | 18.0 |
| 1006.0 | 29.8 | 32.0 | 131 | 9.0 | 1.41 | 7.08  | 62610 | 184.02 | 368.46 | 8.4 | 18.0 |
| 1007.0 | 17.5 | 32.0 | 143 | 9.0 | 1.61 | 7.14  | 63099 | 313.29 | 368.16 | 8.4 | 18.0 |
| 1008.0 | 23.2 | 32.0 | 142 | 9.0 | 1.51 | 7.18  | 63467 | 235.73 | 367.44 | 8.4 | 18.0 |
| 1009.0 | 21.8 | 32.0 | 142 | 9.0 | 1.53 | 7.23  | 63859 | 250.94 | 366.80 | 8.4 | 18.0 |
| 1010.0 | 23.2 | 32.0 | 143 | 9.0 | 1.52 | 7.27  | 64227 | 235.73 | 366.10 | 8.4 | 18.0 |
| 1011.0 | 14.7 | 33.0 | 143 | 9.0 | 1.68 | 7.34  | 64810 | 372.60 | 366.13 | 8.4 | 18.0 |
| 1012.0 | 27.7 | 33.0 | 143 | 9.0 | 1.47 | 7.37  | 65119 | 197.71 | 365.23 | 8.4 | 18.0 |
| 1013.0 | 26.5 | 33.0 | 143 | 9.0 | 1.49 | 7.41  | 65442 | 206.83 | 364.39 | 8.4 | 18.0 |
| 1014.0 | 19.1 | 33.0 | 143 | 9.0 | 1.59 | 7.46  | 65889 | 285.92 | 363.97 | 8.4 | 18.0 |
| 1015.0 | 16.4 | 33.0 | 133 | 9.1 | 1.60 | 7.52  | 66376 | 334.58 | 363.82 | 8.4 | 18.0 |
| 1016.0 | 23.7 | 33.0 | 150 | 9.1 | 1.52 | 7.57  | 66756 | 231.17 | 363.12 | 8.4 | 18.0 |
| 1017.0 | 26.9 | 33.0 | 151 | 9.1 | 1.48 | 7.60  | 67093 | 203.79 | 362.29 | 8.4 | 18.0 |
| 1018.0 | 14.5 | 33.0 | 151 | 9.1 | 1.68 | 7.67  | 67719 | 378.69 | 362.38 | 8.4 | 18.0 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | URNS  | ICOST  | CCOST  | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|--------|--------|-----|------|
| 1019.0 | 18.9 | 33.0 | 151 | 9.1 | 1.59 | 7.73  | 68197 | 288.96 | 362.00 | 8.4 | 18.0 |
| 1020.0 | 19.5 | 33.0 | 150 | 9.1 | 1.59 | 7.78  | 68661 | 281.35 | 361.59 | 8.4 | 18.0 |
| 1021.0 | 16.6 | 33.0 | 151 | 9.1 | 1.64 | 7.84  | 69207 | 330.02 | 361.43 | 8.4 | 18.0 |
| 1022.0 | 17.3 | 33.0 | 151 | 9.1 | 1.62 | 7.89  | 69730 | 316.33 | 361.20 | 8.4 | 18.0 |
| 1023.0 | 17.4 | 33.0 | 151 | 9.1 | 1.62 | 7.95  | 70252 | 314.81 | 360.96 | 8.4 | 18.0 |
| 1024.0 | 18.3 | 33.0 | 151 | 9.1 | 1.61 | 8.01  | 70746 | 299.60 | 360.65 | 8.4 | 18.0 |
| 1025.0 | 6.1  | 33.0 | 149 | 9.1 | 1.95 | 8.17  | 72205 | 891.21 | 363.31 | 8.4 | 18.0 |
| 1026.0 | 15.8 | 33.0 | 150 | 9.1 | 1.65 | 8.23  | 72776 | 346.75 | 363.22 | 8.4 | 18.0 |
| 1027.0 | 17.1 | 33.0 | 150 | 9.1 | 1.63 | 8.29  | 73304 | 320.90 | 363.01 | 8.4 | 18.0 |
| 1028.0 | 15.8 | 33.0 | 151 | 9.1 | 1.65 | 8.35  | 73877 | 346.75 | 362.93 | 8.4 | 18.0 |
| 1029.0 | 16.4 | 33.0 | 151 | 9.1 | 1.64 | 8.42  | 74429 | 334.58 | 362.80 | 8.4 | 18.0 |
| 1030.0 | 16.0 | 33.0 | 151 | 9.1 | 1.65 | 8.48  | 74995 | 342.19 | 362.70 | 8.4 | 18.0 |
| 1031.0 | 8.1  | 33.0 | 150 | 9.1 | 1.87 | 8.60  | 76112 | 679.81 | 364.23 | 8.4 | 18.0 |
| 1032.0 | 24.5 | 33.0 | 145 | 9.1 | 1.50 | 8.64  | 76467 | 223.56 | 363.56 | 8.4 | 18.0 |
| 1033.0 | 22.2 | 33.0 | 149 | 9.1 | 1.54 | 8.69  | 76869 | 246.38 | 362.99 | 8.4 | 18.0 |
| 1034.0 | 25.5 | 39.0 | 148 | 9.1 | 1.57 | 8.73  | 77217 | 214.44 | 362.28 | 8.4 | 18.0 |
| 1035.0 | 23.8 | 39.0 | 149 | 9.1 | 1.59 | 8.77  | 77591 | 229.65 | 361.65 | 8.4 | 18.0 |
| 1036.0 | 26.7 | 39.0 | 149 | 9.1 | 1.56 | 8.81  | 77926 | 205.31 | 360.91 | 8.4 | 18.0 |
| 1037.0 | 20.7 | 39.0 | 149 | 9.1 | 1.64 | 8.86  | 78358 | 264.63 | 360.45 | 8.4 | 18.0 |
| 1038.0 | 14.5 | 39.0 | 150 | 9.1 | 1.76 | 8.92  | 78976 | 377.17 | 360.53 | 8.4 | 18.0 |
| 1039.0 | 22.4 | 39.0 | 149 | 9.1 | 1.62 | 8.97  | 79376 | 244.85 | 359.99 | 8.4 | 18.0 |
| 1040.0 | 26.5 | 39.0 | 148 | 9.1 | 1.56 | 9.01  | 79712 | 206.83 | 359.28 | 8.4 | 18.0 |
| 1041.0 | 25.0 | 39.0 | 148 | 9.1 | 1.58 | 9.05  | 80068 | 219.00 | 358.63 | 8.4 | 18.1 |
| 1042.0 | 24.0 | 39.0 | 146 | 9.1 | 1.59 | 9.09  | 80433 | 228.13 | 358.03 | 8.4 | 18.1 |
| 1043.0 | 25.2 | 41.0 | 145 | 9.1 | 1.59 | 9.13  | 80778 | 217.48 | 357.38 | 8.4 | 18.1 |
| 1044.0 | 25.2 | 41.0 | 149 | 9.1 | 1.60 | 9.17  | 81133 | 217.48 | 356.75 | 8.4 | 18.1 |
| 1045.0 | 22.5 | 43.0 | 149 | 9.1 | 1.67 | 9.21  | 81531 | 243.33 | 356.23 | 8.4 | 18.1 |
| 1046.0 | 27.1 | 43.0 | 149 | 9.1 | 1.60 | 9.25  | 81862 | 202.27 | 355.53 | 8.4 | 18.1 |
| 1047.0 | 25.4 | 45.0 | 149 | 9.1 | 1.65 | 9.29  | 82216 | 215.96 | 354.90 | 8.4 | 18.1 |
| 1048.0 | 21.2 | 45.0 | 149 | 9.1 | 1.71 | 9.34  | 82638 | 258.54 | 354.47 | 8.4 | 18.1 |
| 1049.0 | 18.7 | 45.0 | 150 | 9.1 | 1.76 | 9.39  | 83119 | 293.52 | 354.20 | 8.4 | 18.1 |
| 1050.0 | 19.9 | 45.0 | 149 | 9.1 | 1.73 | 9.44  | 83569 | 275.27 | 353.85 | 8.4 | 18.1 |
| 1051.0 | 21.1 | 45.0 | 149 | 9.1 | 1.71 | 9.49  | 83993 | 260.06 | 353.43 | 8.4 | 18.1 |
| 1052.0 | 27.0 | 45.0 | 119 | 9.1 | 1.55 | 9.52  | 84258 | 202.78 | 352.77 | 8.4 | 18.1 |
| 1053.0 | 25.5 | 45.0 | 147 | 9.1 | 1.64 | 9.56  | 84603 | 214.44 | 352.16 | 8.4 | 18.1 |
| 1054.0 | 33.3 | 45.0 | 150 | 9.1 | 1.55 | 9.59  | 84873 | 164.25 | 351.34 | 8.4 | 18.1 |
| 1055.0 | 11.6 | 45.0 | 151 | 9.1 | 1.93 | 9.68  | 85651 | 471.46 | 351.87 | 8.4 | 18.1 |
| 1056.0 | 29.0 | 45.0 | 150 | 9.1 | 1.60 | 9.71  | 85961 | 188.58 | 351.16 | 8.4 | 18.1 |
| 1057.0 | 21.6 | 45.0 | 150 | 9.1 | 1.71 | 9.76  | 86378 | 253.98 | 350.74 | 8.4 | 18.1 |
| 1058.0 | 16.1 | 45.0 | 150 | 9.1 | 1.81 | 9.82  | 86937 | 339.15 | 350.69 | 8.4 | 18.1 |
| 1059.0 | 32.7 | 45.0 | 149 | 9.1 | 1.56 | 9.85  | 87210 | 167.29 | 349.91 | 8.4 | 18.1 |
| 1060.0 | 26.3 | 45.0 | 149 | 9.1 | 1.63 | 9.89  | 87551 | 208.35 | 349.30 | 8.4 | 18.1 |
| 1061.0 | 15.6 | 45.0 | 134 | 9.1 | 1.78 | 9.96  | 88068 | 351.31 | 349.31 | 8.4 | 18.1 |
| 1062.0 | 27.9 | 45.0 | 141 | 9.1 | 1.59 | 9.99  | 88372 | 196.19 | 348.67 | 8.4 | 18.1 |
| 1063.0 | 23.1 | 45.0 | 149 | 9.1 | 1.68 | 10.03 | 88758 | 237.25 | 348.20 | 8.4 | 18.1 |
| 1064.0 | 32.7 | 45.0 | 149 | 9.1 | 1.56 | 10.06 | 89030 | 167.29 | 347.44 | 8.4 | 18.1 |
| 1065.0 | 27.5 | 45.0 | 148 | 9.1 | 1.62 | 10.10 | 89353 | 199.23 | 346.82 | 8.4 | 18.1 |
| 1066.0 | 32.1 | 45.0 | 148 | 9.1 | 1.56 | 10.13 | 89629 | 170.33 | 346.09 | 8.4 | 18.1 |
| 1067.0 | 28.1 | 45.0 | 141 | 9.1 | 1.59 | 10.17 | 89930 | 194.67 | 345.47 | 8.4 | 18.1 |
| 1068.0 | 23.5 | 45.0 | 147 | 9.1 | 1.67 | 10.21 | 90305 | 232.69 | 345.00 | 8.4 | 18.1 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS  | ICOST  | CCOST  | PP  | FG   |
|--------|------|------|-----|-----|------|-------|--------|--------|--------|-----|------|
| 1069.0 | 18.7 | 45.0 | 150 | 9.1 | 1.76 | 10.26 | 90787  | 293.52 | 344.79 | 8.4 | 18.1 |
| 1070.0 | 26.5 | 45.0 | 149 | 9.1 | 1.63 | 10.30 | 91124  | 206.83 | 344.23 | 8.4 | 18.1 |
| 1071.0 | 31.6 | 45.0 | 149 | 9.1 | 1.57 | 10.33 | 91406  | 173.38 | 343.53 | 8.4 | 18.1 |
| 1072.0 | 19.8 | 45.0 | 126 | 9.1 | 1.67 | 10.38 | 91788  | 276.79 | 343.26 | 8.4 | 18.1 |
| 1073.0 | 27.9 | 45.0 | 148 | 9.1 | 1.61 | 10.42 | 92106  | 196.19 | 342.67 | 8.4 | 18.1 |
| 1074.0 | 18.8 | 45.0 | 149 | 9.1 | 1.75 | 10.47 | 92580  | 290.48 | 342.46 | 8.4 | 18.1 |
| 1075.0 | 28.3 | 45.0 | 148 | 9.1 | 1.60 | 10.51 | 92892  | 193.15 | 341.86 | 8.4 | 18.1 |
| 1076.0 | 21.6 | 45.0 | 148 | 9.1 | 1.70 | 10.55 | 93305  | 253.98 | 341.51 | 8.4 | 18.1 |
| 1077.0 | 20.3 | 45.0 | 148 | 9.1 | 1.72 | 10.60 | 93742  | 269.19 | 341.23 | 8.4 | 18.1 |
| 1078.0 | 24.0 | 45.0 | 148 | 9.1 | 1.66 | 10.65 | 94112  | 228.13 | 340.78 | 8.4 | 18.1 |
| 1079.0 | 23.2 | 45.0 | 148 | 9.1 | 1.68 | 10.69 | 94495  | 235.73 | 340.37 | 8.4 | 18.1 |
| 1080.0 | 22.1 | 45.0 | 148 | 9.1 | 1.69 | 10.73 | 94897  | 247.90 | 340.00 | 8.4 | 18.1 |
| 1081.0 | 18.8 | 45.0 | 144 | 9.1 | 1.74 | 10.79 | 95357  | 292.00 | 339.82 | 8.4 | 18.2 |
| 1082.0 | 18.2 | 45.0 | 148 | 9.1 | 1.76 | 10.84 | 95844  | 301.13 | 339.66 | 8.4 | 18.2 |
| 1083.0 | 21.4 | 45.0 | 145 | 9.1 | 1.70 | 10.89 | 96251  | 255.50 | 339.34 | 8.4 | 18.2 |
| 1084.0 | 25.4 | 44.7 | 146 | 9.1 | 1.63 | 10.93 | 96596  | 215.96 | 338.86 | 8.4 | 18.2 |
| 1085.0 | 24.3 | 44.1 | 147 | 9.1 | 1.65 | 10.97 | 96959  | 225.08 | 338.42 | 8.4 | 18.2 |
| 1086.0 | 25.0 | 44.8 | 149 | 9.1 | 1.65 | 11.01 | 97316  | 219.00 | 337.97 | 8.4 | 18.2 |
| 1087.0 | 17.3 | 45.2 | 149 | 9.1 | 1.78 | 11.07 | 97835  | 316.33 | 337.88 | 8.4 | 18.2 |
| 1088.0 | 15.2 | 46.2 | 150 | 9.1 | 1.84 | 11.13 | 98427  | 360.44 | 337.97 | 8.4 | 18.2 |
| 1089.0 | 22.6 | 44.6 | 146 | 9.1 | 1.67 | 11.18 | 98815  | 241.81 | 337.61 | 8.4 | 18.2 |
| 1090.0 | 18.4 | 43.6 | 148 | 9.1 | 1.74 | 11.23 | 99299  | 298.08 | 337.46 | 8.4 | 18.2 |
| 1091.0 | 18.2 | 41.8 | 146 | 9.1 | 1.72 | 11.29 | 99782  | 301.13 | 337.32 | 8.4 | 18.2 |
| 1092.0 | 19.0 | 43.8 | 144 | 9.1 | 1.72 | 11.34 | 100234 | 287.44 | 337.13 | 8.4 | 18.2 |
| 1093.0 | 16.9 | 43.6 | 141 | 9.1 | 1.75 | 11.40 | 100734 | 323.94 | 337.08 | 8.4 | 18.2 |
| 1094.0 | 12.8 | 42.5 | 135 | 9.1 | 1.82 | 11.48 | 101368 | 427.35 | 337.42 | 8.4 | 18.2 |
| 1095.0 | 23.4 | 45.2 | 130 | 9.1 | 1.63 | 11.52 | 101702 | 234.21 | 337.04 | 8.4 | 18.2 |
| 1096.0 | 16.9 | 45.1 | 144 | 9.1 | 1.78 | 11.58 | 102213 | 323.94 | 336.99 | 8.4 | 18.2 |
| 1097.0 | 19.1 | 46.1 | 144 | 9.1 | 1.75 | 11.63 | 102665 | 285.92 | 336.80 | 8.4 | 18.2 |
| 1098.0 | 22.2 | 48.5 | 144 | 9.1 | 1.72 | 11.68 | 103053 | 246.38 | 336.47 | 8.4 | 18.2 |
| 1099.0 | 13.6 | 44.7 | 144 | 9.1 | 1.85 | 11.75 | 103688 | 403.02 | 336.71 | 8.4 | 18.2 |
| 1100.0 | 21.2 | 44.1 | 140 | 9.2 | 1.66 | 11.80 | 104086 | 258.54 | 336.43 | 8.4 | 18.2 |
| 1101.0 | 26.3 | 43.6 | 143 | 9.2 | 1.59 | 11.83 | 104413 | 208.35 | 335.96 | 8.4 | 18.2 |
| 1102.0 | 31.3 | 43.5 | 149 | 9.2 | 1.54 | 11.87 | 104699 | 174.90 | 335.38 | 8.4 | 18.2 |
| 1103.0 | 12.0 | 45.6 | 150 | 9.2 | 1.90 | 11.95 | 105452 | 456.25 | 335.82 | 8.4 | 18.2 |
| 1104.0 | 14.8 | 44.1 | 148 | 9.2 | 1.80 | 12.02 | 106052 | 371.08 | 335.94 | 8.4 | 18.2 |
| 1105.0 | 26.9 | 42.8 | 145 | 9.2 | 1.57 | 12.05 | 106376 | 203.79 | 335.47 | 8.4 | 18.2 |
| 1106.0 | 17.2 | 45.6 | 150 | 9.2 | 1.77 | 12.11 | 106898 | 317.85 | 335.41 | 8.4 | 18.2 |
| 1107.0 | 14.0 | 44.2 | 146 | 9.2 | 1.82 | 12.18 | 107525 | 390.85 | 335.61 | 8.4 | 18.2 |
| 1108.0 | 16.8 | 43.0 | 137 | 9.2 | 1.72 | 12.24 | 108014 | 325.46 | 335.57 | 8.4 | 18.2 |
| 1109.0 | 29.8 | 43.0 | 135 | 9.2 | 1.52 | 12.28 | 108286 | 184.02 | 335.04 | 8.4 | 18.2 |
| 1110.0 | 30.8 | 38.2 | 135 | 9.2 | 1.45 | 12.31 | 108549 | 177.94 | 334.49 | 8.4 | 18.2 |
| 1111.0 | 21.8 | 42.9 | 146 | 9.2 | 1.65 | 12.36 | 108951 | 250.94 | 334.19 | 8.4 | 18.2 |
| 1112.0 | 22.2 | 43.7 | 148 | 9.2 | 1.66 | 12.40 | 109351 | 246.38 | 333.89 | 8.4 | 18.2 |
| 1113.0 | 24.5 | 42.3 | 148 | 9.2 | 1.61 | 12.44 | 109714 | 223.56 | 333.50 | 8.4 | 18.2 |
| 1114.0 | 27.3 | 43.3 | 148 | 9.2 | 1.58 | 12.48 | 110040 | 200.75 | 333.05 | 8.4 | 18.2 |
| 1115.0 | 26.3 | 42.4 | 148 | 9.2 | 1.58 | 12.52 | 110378 | 208.35 | 332.62 | 8.4 | 18.2 |
| 1116.0 | 24.0 | 41.5 | 148 | 9.2 | 1.60 | 12.56 | 110749 | 228.13 | 332.26 | 8.4 | 18.2 |
| 1117.0 | 27.1 | 42.9 | 148 | 9.2 | 1.58 | 12.59 | 111077 | 202.27 | 331.81 | 8.4 | 18.2 |
| 1118.0 | 26.3 | 42.7 | 148 | 9.2 | 1.59 | 12.63 | 111415 | 208.35 | 331.39 | 8.4 | 18.2 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | URNS   | ICOST  | CCOST  | PP  | FG   |
|--------|------|------|-----|-----|------|-------|--------|--------|--------|-----|------|
| 1119.0 | 22.5 | 44.1 | 148 | 9.2 | 1.66 | 12.68 | 111810 | 243.33 | 331.09 | 8.4 | 18.2 |
| 1120.0 | 21.0 | 44.0 | 150 | 9.2 | 1.68 | 12.72 | 112239 | 260.71 | 330.85 | 8.4 | 18.2 |
| 1121.0 | 23.0 | 44.0 | 150 | 9.2 | 1.65 | 12.77 | 112630 | 238.04 | 330.54 | 8.4 | 18.2 |
| 1122.0 | 25.0 | 44.0 | 150 | 9.2 | 1.62 | 12.81 | 112990 | 219.00 | 330.16 | 8.4 | 18.3 |
| 1123.0 | 28.0 | 45.0 | 150 | 9.2 | 1.60 | 12.84 | 113312 | 195.54 | 329.71 | 8.4 | 18.3 |
| 1124.0 | 26.0 | 45.0 | 150 | 9.2 | 1.62 | 12.88 | 113658 | 210.58 | 329.31 | 8.4 | 18.3 |
| 1125.0 | 21.0 | 45.0 | 150 | 9.2 | 1.70 | 12.93 | 114086 | 260.71 | 329.08 | 8.4 | 18.3 |
| 1126.0 | 21.0 | 45.0 | 150 | 9.2 | 1.70 | 12.98 | 114515 | 260.71 | 328.86 | 8.4 | 18.3 |
| 1127.0 | 21.0 | 45.0 | 150 | 9.2 | 1.70 | 13.03 | 114944 | 260.71 | 328.63 | 8.4 | 18.3 |
| 1128.0 | 20.0 | 44.0 | 150 | 9.2 | 1.70 | 13.08 | 115394 | 273.75 | 328.45 | 8.4 | 18.3 |
| 1129.0 | 15.0 | 44.0 | 150 | 9.2 | 1.80 | 13.14 | 115994 | 365.00 | 328.57 | 8.4 | 18.3 |
| 1130.0 | 12.0 | 44.0 | 150 | 9.2 | 1.88 | 13.23 | 116744 | 456.25 | 328.99 | 8.4 | 18.3 |
| 1131.0 | 30.0 | 44.0 | 150 | 9.2 | 1.56 | 13.26 | 117044 | 182.50 | 328.51 | 8.4 | 18.3 |
| 1132.0 | 15.0 | 44.0 | 150 | 9.2 | 1.80 | 13.33 | 117644 | 365.00 | 328.63 | 8.4 | 18.3 |
| 1133.0 | 15.0 | 44.0 | 150 | 9.2 | 1.80 | 13.39 | 118244 | 365.00 | 328.75 | 8.4 | 18.3 |
| 1134.0 | 18.0 | 43.0 | 149 | 9.2 | 1.72 | 13.45 | 118740 | 304.17 | 328.67 | 8.4 | 18.3 |
| 1135.0 | 21.0 | 45.0 | 149 | 9.2 | 1.69 | 13.50 | 119166 | 260.71 | 328.45 | 8.4 | 18.3 |
| 1136.0 | 19.0 | 45.0 | 150 | 9.2 | 1.73 | 13.55 | 119640 | 288.16 | 328.32 | 8.4 | 18.3 |
| 1137.0 | 22.0 | 45.0 | 150 | 9.2 | 1.68 | 13.59 | 120049 | 248.86 | 328.06 | 8.4 | 18.3 |
| 1138.0 | 30.0 | 45.0 | 150 | 9.2 | 1.57 | 13.63 | 120349 | 182.50 | 327.60 | 8.4 | 18.3 |
| 1139.0 | 12.0 | 45.0 | 150 | 9.2 | 1.89 | 13.71 | 121099 | 456.25 | 328.01 | 8.4 | 18.3 |
| 1140.0 | 8.0  | 45.0 | 150 | 9.2 | 2.03 | 13.83 | 122224 | 684.38 | 329.14 | 8.4 | 18.3 |
| 1141.0 | 30.0 | 45.0 | 150 | 9.2 | 1.57 | 13.87 | 122524 | 182.50 | 328.68 | 8.4 | 18.3 |
| 1142.0 | 22.0 | 45.0 | 150 | 9.2 | 1.68 | 13.91 | 122933 | 248.86 | 328.42 | 8.4 | 18.3 |
| 1143.0 | 22.0 | 45.0 | 150 | 9.2 | 1.68 | 13.96 | 123342 | 248.86 | 328.17 | 8.4 | 18.3 |
| 1144.0 | 26.0 | 45.0 | 150 | 9.2 | 1.62 | 14.00 | 123688 | 210.58 | 327.80 | 8.4 | 18.3 |
| 1145.0 | 26.0 | 45.0 | 150 | 9.2 | 1.62 | 14.04 | 124034 | 210.58 | 327.44 | 8.4 | 18.3 |
| 1146.0 | 26.0 | 45.0 | 150 | 9.2 | 1.62 | 14.07 | 124380 | 210.58 | 327.07 | 8.4 | 18.3 |
| 1147.0 | 27.0 | 45.0 | 150 | 9.2 | 1.61 | 14.11 | 124714 | 202.78 | 326.69 | 8.4 | 18.3 |
| 1148.0 | 22.5 | 45.0 | 149 | 9.2 | 1.67 | 14.16 | 125111 | 243.33 | 326.43 | 8.4 | 18.3 |
| 1149.0 | 19.5 | 45.0 | 149 | 9.2 | 1.72 | 14.21 | 125570 | 281.35 | 326.29 | 8.4 | 18.3 |
| 1150.0 | 34.3 | 45.0 | 148 | 9.2 | 1.52 | 14.24 | 125830 | 159.69 | 325.78 | 8.4 | 18.3 |
| 1151.0 | 26.2 | 45.0 | 148 | 9.1 | 1.63 | 14.27 | 126169 | 209.11 | 325.42 | 8.4 | 18.3 |
| 1152.0 | 25.0 | 45.0 | 148 | 9.1 | 1.65 | 14.31 | 126524 | 219.00 | 325.10 | 8.4 | 18.3 |
| 1153.0 | 19.4 | 45.0 | 148 | 9.1 | 1.74 | 14.37 | 126983 | 282.88 | 324.97 | 8.4 | 18.3 |
| 1154.0 | 21.8 | 45.0 | 148 | 9.1 | 1.70 | 14.41 | 127390 | 250.94 | 324.74 | 8.4 | 18.3 |
| 1155.0 | 19.9 | 45.0 | 148 | 9.1 | 1.73 | 14.46 | 127835 | 275.27 | 324.59 | 8.4 | 18.3 |
| 1156.0 | 25.0 | 45.0 | 147 | 9.1 | 1.65 | 14.50 | 128188 | 219.00 | 324.27 | 8.4 | 18.3 |
| 1157.0 | 25.9 | 45.0 | 143 | 9.1 | 1.62 | 14.54 | 128519 | 211.40 | 323.93 | 8.4 | 18.3 |
| 1158.0 | 24.3 | 45.0 | 147 | 9.1 | 1.66 | 14.58 | 128881 | 225.08 | 323.64 | 8.4 | 18.3 |
| 1159.0 | 25.5 | 45.0 | 143 | 9.1 | 1.64 | 14.62 | 129229 | 214.44 | 323.31 | 8.4 | 18.3 |
| 1160.0 | 32.7 | 45.0 | 147 | 9.1 | 1.55 | 14.65 | 129499 | 167.29 | 322.84 | 8.4 | 18.3 |
| 1161.0 | 26.1 | 45.0 | 149 | 9.1 | 1.64 | 14.69 | 129842 | 209.88 | 322.51 | 8.4 | 18.3 |
| 1162.0 | 26.1 | 45.0 | 149 | 9.1 | 1.64 | 14.73 | 130185 | 209.88 | 322.17 | 8.4 | 18.3 |
| 1163.0 | 27.5 | 45.0 | 149 | 9.1 | 1.62 | 14.76 | 130510 | 199.23 | 321.81 | 8.4 | 18.4 |
| 1164.0 | 22.9 | 43.4 | 149 | 9.1 | 1.66 | 14.81 | 130901 | 238.77 | 321.56 | 8.4 | 18.4 |
| 1165.0 | 23.7 | 41.6 | 149 | 9.1 | 1.63 | 14.85 | 131278 | 231.17 | 321.30 | 8.4 | 18.4 |
| 1166.0 | 17.6 | 43.1 | 149 | 9.1 | 1.75 | 14.91 | 131786 | 310.25 | 321.27 | 8.4 | 18.4 |
| 1167.0 | 21.4 | 41.6 | 142 | 9.1 | 1.65 | 14.95 | 132184 | 255.50 | 321.07 | 8.4 | 18.4 |
| 1168.0 | 19.9 | 42.7 | 147 | 9.1 | 1.70 | 15.00 | 132627 | 275.27 | 320.94 | 8.4 | 18.4 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS  | ICOST  | CCOST  | PP  | FG   |
|--------|------|------|-----|-----|------|-------|--------|--------|--------|-----|------|
| 1169.0 | 18.7 | 41.5 | 147 | 9.1 | 1.70 | 15.06 | 133099 | 293.52 | 320.86 | 8.4 | 18.4 |
| 1170.0 | 18.3 | 42.3 | 147 | 9.1 | 1.72 | 15.11 | 133580 | 299.60 | 320.80 | 8.4 | 18.4 |
| 1171.0 | 25.2 | 46.8 | 145 | 9.1 | 1.66 | 15.15 | 133926 | 217.48 | 320.50 | 8.4 | 18.4 |
| 1172.0 | 20.3 | 45.5 | 147 | 9.1 | 1.72 | 15.20 | 134360 | 269.19 | 320.35 | 8.4 | 18.4 |
| 1173.0 | 22.2 | 45.2 | 147 | 9.1 | 1.69 | 15.25 | 134758 | 246.38 | 320.14 | 8.4 | 18.4 |
| 1174.0 | 20.8 | 44.1 | 147 | 9.1 | 1.70 | 15.29 | 135181 | 263.10 | 319.98 | 8.4 | 18.4 |
| 1175.0 | 19.4 | 43.2 | 147 | 9.1 | 1.72 | 15.35 | 135638 | 282.88 | 319.87 | 8.4 | 18.4 |
| 1176.0 | 25.7 | 43.6 | 147 | 9.2 | 1.60 | 15.39 | 135982 | 212.92 | 319.57 | 8.4 | 18.4 |
| 1177.0 | 31.0 | 42.0 | 147 | 9.2 | 1.52 | 15.42 | 136266 | 176.42 | 319.16 | 8.4 | 18.4 |
| 1178.0 | 18.3 | 41.9 | 149 | 9.2 | 1.70 | 15.47 | 136754 | 299.60 | 319.10 | 8.4 | 18.4 |
| 1179.0 | 23.4 | 46.8 | 148 | 9.2 | 1.68 | 15.51 | 137134 | 234.21 | 318.86 | 8.4 | 18.4 |
| 1180.0 | 24.2 | 47.0 | 147 | 9.2 | 1.66 | 15.56 | 137500 | 226.60 | 318.60 | 8.4 | 18.4 |
| 1181.0 | 21.3 | 43.3 | 148 | 9.2 | 1.67 | 15.60 | 137917 | 257.02 | 318.43 | 8.4 | 18.4 |
| 1182.0 | 24.3 | 44.3 | 148 | 9.2 | 1.63 | 15.64 | 138282 | 225.08 | 318.17 | 8.4 | 18.4 |
| 1183.0 | 25.5 | 46.5 | 147 | 9.2 | 1.64 | 15.68 | 138628 | 214.44 | 317.88 | 8.4 | 18.4 |
| 1184.0 | 26.3 | 44.4 | 147 | 9.2 | 1.61 | 15.72 | 138965 | 208.35 | 317.57 | 8.4 | 18.4 |
| 1185.0 | 23.8 | 45.0 | 143 | 9.2 | 1.64 | 15.76 | 139324 | 229.65 | 317.33 | 8.4 | 18.4 |
| 1186.0 | 24.0 | 45.0 | 147 | 9.2 | 1.64 | 15.81 | 139692 | 228.13 | 317.08 | 8.4 | 18.4 |
| 1187.0 | 33.6 | 45.0 | 147 | 9.2 | 1.53 | 15.83 | 139955 | 162.73 | 316.66 | 8.4 | 18.4 |
| 1188.0 | 20.1 | 45.0 | 148 | 9.2 | 1.71 | 15.88 | 140395 | 272.23 | 316.53 | 8.4 | 18.4 |
| 1189.0 | 17.0 | 45.0 | 148 | 9.2 | 1.77 | 15.94 | 140917 | 322.42 | 316.55 | 8.4 | 18.4 |
| 1190.0 | 20.1 | 45.0 | 148 | 9.2 | 1.71 | 15.99 | 141358 | 272.23 | 316.43 | 8.4 | 18.4 |
| 1191.0 | 18.2 | 45.0 | 147 | 9.2 | 1.74 | 16.05 | 141844 | 301.13 | 316.39 | 8.4 | 18.4 |
| 1192.0 | 18.4 | 45.0 | 147 | 9.2 | 1.74 | 16.10 | 142324 | 298.08 | 316.34 | 8.4 | 18.4 |
| 1193.0 | 22.5 | 45.0 | 147 | 9.2 | 1.67 | 16.15 | 142716 | 243.33 | 316.14 | 8.4 | 18.4 |
| 1194.0 | 22.4 | 45.0 | 146 | 9.2 | 1.67 | 16.19 | 143109 | 244.85 | 315.95 | 8.4 | 18.4 |
| 1195.0 | 16.0 | 45.0 | 146 | 9.2 | 1.78 | 16.25 | 143655 | 342.19 | 316.02 | 8.4 | 18.4 |
| 1196.0 | 20.0 | 45.0 | 146 | 9.2 | 1.71 | 16.30 | 144094 | 273.75 | 315.90 | 8.4 | 18.4 |
| 1197.0 | 19.4 | 45.0 | 147 | 9.2 | 1.72 | 16.36 | 144549 | 282.88 | 315.81 | 8.4 | 18.4 |
| 1198.0 | 26.7 | 45.0 | 147 | 9.2 | 1.61 | 16.39 | 144880 | 205.31 | 315.52 | 8.4 | 18.4 |
| 1199.0 | 20.5 | 45.0 | 147 | 9.2 | 1.70 | 16.44 | 145311 | 267.67 | 315.39 | 8.4 | 18.4 |
| 1200.0 | 27.7 | 45.0 | 147 | 9.2 | 1.59 | 16.48 | 145630 | 197.71 | 315.08 | 8.4 | 18.4 |
| 1201.0 | 30.3 | 45.0 | 147 | 9.2 | 1.56 | 16.51 | 145920 | 180.98 | 314.72 | 8.4 | 18.4 |
| 1202.0 | 37.5 | 45.0 | 147 | 9.2 | 1.49 | 16.54 | 146156 | 146.00 | 314.27 | 8.4 | 18.4 |
| 1203.0 | 30.5 | 45.0 | 147 | 9.2 | 1.56 | 16.57 | 146446 | 179.46 | 313.92 | 8.4 | 18.4 |
| 1204.0 | 31.9 | 45.0 | 146 | 9.2 | 1.54 | 16.60 | 146721 | 171.85 | 313.54 | 8.4 | 18.4 |
| 1205.0 | 19.6 | 45.0 | 148 | 9.2 | 1.72 | 16.65 | 147175 | 279.83 | 313.45 | 8.4 | 18.4 |
| 1206.0 | 22.5 | 45.0 | 150 | 9.2 | 1.67 | 16.70 | 147574 | 243.33 | 313.27 | 8.4 | 18.5 |
| 1207.0 | 23.5 | 45.0 | 150 | 9.2 | 1.66 | 16.74 | 147957 | 232.69 | 313.06 | 8.4 | 18.5 |
| 1208.0 | 28.8 | 45.0 | 150 | 9.2 | 1.59 | 16.78 | 148269 | 190.10 | 312.74 | 8.4 | 18.5 |
| 1209.0 | 30.0 | 45.0 | 150 | 9.2 | 1.57 | 16.81 | 148569 | 182.50 | 312.40 | 8.4 | 18.5 |
| 1210.0 | 27.3 | 45.0 | 150 | 9.2 | 1.61 | 16.85 | 148899 | 200.75 | 312.11 | 8.4 | 18.5 |
| 1211.0 | 39.1 | 45.0 | 150 | 9.2 | 1.48 | 16.87 | 149130 | 139.92 | 311.66 | 8.4 | 18.5 |
| 1212.0 | 33.0 | 45.0 | 151 | 9.2 | 1.54 | 16.90 | 149403 | 165.77 | 311.28 | 8.4 | 18.5 |
| 1213.0 | 38.3 | 45.0 | 151 | 9.2 | 1.49 | 16.93 | 149640 | 142.96 | 310.85 | 8.4 | 18.5 |
| 1214.0 | 31.9 | 45.0 | 147 | 9.2 | 1.55 | 16.96 | 149918 | 171.85 | 310.49 | 8.4 | 18.5 |
| 1215.0 | 34.6 | 45.0 | 164 | 9.2 | 1.55 | 16.99 | 150202 | 158.17 | 310.10 | 8.4 | 18.5 |
| 1216.0 | 34.6 | 45.0 | 166 | 9.2 | 1.56 | 17.02 | 150490 | 158.17 | 309.71 | 8.4 | 18.5 |
| 1217.0 | 34.3 | 45.0 | 167 | 9.2 | 1.56 | 17.05 | 150781 | 159.69 | 309.33 | 8.4 | 18.5 |
| 1218.0 | 38.7 | 45.0 | 166 | 9.2 | 1.52 | 17.07 | 151039 | 141.44 | 308.90 | 8.4 | 18.5 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | URNS   | ICOST  | CCOST  | PP  | FG   |
|--------|------|------|-----|-----|------|-------|--------|--------|--------|-----|------|
| 1219.0 | 38.3 | 45.0 | 166 | 9.2 | 1.52 | 17.10 | 151299 | 142.96 | 308.48 | 8.4 | 18.5 |
| 1220.0 | 39.1 | 45.0 | 166 | 9.2 | 1.51 | 17.12 | 151553 | 139.92 | 308.06 | 8.4 | 18.5 |
| 1221.0 | 35.0 | 45.0 | 166 | 9.2 | 1.56 | 17.15 | 151839 | 156.65 | 307.67 | 8.4 | 18.5 |
| 1222.0 | 32.1 | 45.0 | 166 | 9.2 | 1.58 | 17.18 | 152149 | 170.33 | 307.33 | 8.4 | 18.5 |
| 1223.0 | 19.6 | 45.0 | 143 | 9.2 | 1.71 | 17.23 | 152588 | 279.83 | 307.26 | 8.4 | 18.5 |
| 1224.0 | 27.1 | 45.0 | 151 | 9.2 | 1.61 | 17.27 | 152923 | 202.27 | 306.99 | 8.4 | 18.5 |
| 1225.0 | 18.6 | 45.0 | 152 | 9.2 | 1.74 | 17.32 | 153415 | 295.04 | 306.96 | 8.4 | 18.5 |
| 1226.0 | 16.6 | 45.0 | 153 | 9.2 | 1.79 | 17.38 | 153969 | 330.02 | 307.02 | 8.4 | 18.5 |
| 1227.0 | 26.7 | 43.6 | 153 | 9.2 | 1.60 | 17.42 | 154312 | 205.31 | 306.77 | 8.4 | 18.5 |
| 1228.0 | 42.9 | 40.0 | 153 | 9.2 | 1.40 | 17.45 | 154525 | 127.75 | 306.33 | 8.4 | 18.5 |
| 1229.0 | 35.3 | 44.3 | 152 | 9.2 | 1.51 | 17.47 | 154784 | 155.13 | 305.95 | 8.4 | 18.5 |
| 1230.0 | 34.0 | 44.3 | 153 | 9.2 | 1.53 | 17.50 | 155054 | 161.21 | 305.59 | 8.4 | 18.5 |
| 1231.0 | 39.6 | 43.3 | 153 | 9.2 | 1.46 | 17.53 | 155286 | 138.40 | 305.18 | 8.4 | 18.5 |
| 1232.0 | 30.3 | 44.5 | 152 | 9.3 | 1.55 | 17.56 | 155588 | 180.98 | 304.88 | 8.4 | 18.5 |
| 1233.0 | 32.1 | 45.0 | 149 | 9.3 | 1.53 | 17.59 | 155866 | 170.33 | 304.55 | 8.4 | 18.5 |
| 1234.0 | 33.0 | 45.0 | 149 | 9.3 | 1.52 | 17.62 | 156136 | 165.77 | 304.21 | 8.4 | 18.5 |
| 1235.0 | 26.7 | 44.6 | 150 | 9.3 | 1.59 | 17.66 | 156474 | 205.31 | 303.97 | 8.4 | 18.5 |
| 1236.0 | 28.1 | 46.2 | 150 | 9.3 | 1.59 | 17.70 | 156795 | 194.67 | 303.70 | 8.4 | 18.5 |
| 1237.0 | 37.5 | 45.7 | 150 | 9.3 | 1.49 | 17.72 | 157035 | 146.00 | 303.32 | 8.4 | 18.5 |
| 1238.0 | 45.0 | 43.9 | 150 | 9.3 | 1.40 | 17.75 | 157235 | 121.67 | 302.88 | 8.4 | 18.5 |
| 1239.0 | 31.9 | 42.5 | 150 | 9.3 | 1.51 | 17.78 | 157518 | 171.85 | 302.56 | 8.4 | 18.5 |
| 1240.0 | 38.7 | 44.3 | 150 | 9.3 | 1.46 | 17.80 | 157751 | 141.44 | 302.17 | 8.4 | 18.5 |
| 1241.0 | 37.9 | 44.4 | 150 | 9.3 | 1.47 | 17.83 | 157989 | 144.48 | 301.79 | 8.4 | 18.5 |
| 1242.0 | 40.4 | 45.2 | 150 | 9.3 | 1.46 | 17.85 | 158211 | 135.35 | 301.39 | 8.4 | 18.5 |
| 1243.0 | 25.5 | 44.5 | 146 | 9.3 | 1.60 | 17.89 | 158555 | 214.44 | 301.19 | 8.4 | 18.5 |
| 1244.0 | 25.4 | 46.3 | 137 | 9.3 | 1.60 | 17.93 | 158879 | 215.96 | 300.98 | 8.4 | 18.5 |
| 1245.0 | 30.3 | 46.2 | 150 | 9.3 | 1.57 | 17.97 | 159176 | 180.98 | 300.70 | 8.4 | 18.5 |
| 1246.0 | 34.3 | 44.0 | 150 | 9.3 | 1.50 | 17.99 | 159439 | 159.69 | 300.36 | 8.4 | 18.5 |
| 1247.0 | 33.3 | 43.4 | 151 | 9.3 | 1.50 | 18.02 | 159710 | 164.25 | 300.04 | 8.4 | 18.5 |
| 1248.0 | 34.0 | 42.2 | 151 | 9.3 | 1.48 | 18.05 | 159976 | 161.21 | 299.71 | 8.4 | 18.5 |
| 1249.0 | 31.9 | 42.4 | 151 | 9.3 | 1.51 | 18.09 | 160260 | 171.85 | 299.41 | 8.4 | 18.5 |
| 1250.0 | 37.5 | 45.6 | 151 | 9.3 | 1.49 | 18.11 | 160501 | 146.00 | 299.05 | 8.4 | 18.5 |
| 1251.0 | 33.3 | 43.8 | 151 | 9.3 | 1.51 | 18.14 | 160773 | 164.25 | 298.73 | 8.4 | 18.6 |
| 1252.0 | 28.1 | 45.0 | 135 | 9.3 | 1.54 | 18.18 | 161060 | 194.67 | 298.49 | 8.4 | 18.6 |
| 1253.0 | 31.0 | 44.4 | 148 | 9.3 | 1.53 | 18.21 | 161346 | 176.42 | 298.20 | 8.4 | 18.6 |
| 1254.0 | 32.7 | 45.4 | 148 | 9.3 | 1.52 | 18.24 | 161617 | 167.29 | 297.90 | 8.4 | 18.6 |
| 1255.0 | 36.0 | 45.0 | 148 | 9.3 | 1.49 | 18.27 | 161864 | 152.08 | 297.56 | 8.4 | 18.6 |
| 1256.0 | 39.1 | 45.1 | 148 | 9.3 | 1.46 | 18.29 | 162091 | 139.92 | 297.19 | 8.4 | 18.6 |
| 1257.0 | 37.9 | 46.1 | 148 | 9.3 | 1.48 | 18.32 | 162325 | 144.48 | 296.84 | 8.4 | 18.6 |
| 1258.0 | 34.6 | 46.4 | 147 | 9.3 | 1.51 | 18.35 | 162580 | 158.17 | 296.52 | 8.4 | 18.6 |
| 1259.0 | 32.4 | 45.8 | 147 | 9.3 | 1.53 | 18.38 | 162853 | 168.81 | 296.23 | 8.4 | 18.6 |
| 1260.0 | 28.8 | 46.7 | 147 | 9.3 | 1.58 | 18.41 | 163159 | 190.10 | 295.98 | 8.4 | 18.6 |
| 1261.0 | 26.9 | 45.0 | 147 | 9.2 | 1.60 | 18.45 | 163487 | 203.79 | 295.77 | 8.4 | 18.6 |
| 1262.0 | 26.9 | 45.0 | 133 | 9.2 | 1.57 | 18.49 | 163785 | 203.79 | 295.56 | 8.4 | 18.6 |
| 1263.0 | 26.5 | 45.0 | 149 | 9.2 | 1.61 | 18.53 | 164122 | 206.83 | 295.36 | 8.4 | 18.6 |
| 1264.0 | 30.3 | 45.0 | 149 | 9.2 | 1.57 | 18.56 | 164418 | 180.98 | 295.10 | 8.4 | 18.6 |
| 1265.0 | 40.4 | 45.0 | 149 | 9.2 | 1.47 | 18.58 | 164639 | 135.35 | 294.73 | 8.4 | 18.6 |
| 1266.0 | 36.7 | 45.0 | 149 | 9.2 | 1.50 | 18.61 | 164881 | 149.04 | 294.40 | 8.4 | 18.6 |
| 1267.0 | 28.8 | 45.0 | 149 | 9.2 | 1.58 | 18.65 | 165192 | 190.10 | 294.17 | 8.4 | 18.6 |
| 1268.0 | 37.1 | 45.0 | 148 | 9.2 | 1.49 | 18.67 | 165431 | 147.52 | 293.84 | 8.4 | 18.6 |



| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS  | ICOST  | CCOST  | PP  | FG   |
|--------|------|------|-----|-----|------|-------|--------|--------|--------|-----|------|
| 1269.0 | 42.9 | 45.0 | 148 | 9.2 | 1.44 | 18.70 | 165638 | 127.75 | 293.46 | 8.4 | 18.6 |
| 1270.0 | 28.3 | 45.0 | 147 | 9.2 | 1.58 | 18.73 | 165948 | 193.15 | 293.24 | 8.4 | 18.6 |
| 1271.0 | 26.1 | 45.0 | 149 | 9.2 | 1.62 | 18.77 | 166290 | 209.88 | 293.05 | 8.4 | 18.6 |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 4       | IADC CODE   | 114    | INTERVAL  | 1271.0- 1624.0 |
| HTC X3A     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 2201.00 | TRIP TIME   | 5.4    | BIT RUN   | 353.0          |
| TOTAL HOURS | 15.10   | TOTAL TURNS | 122032 | CONDITION | T8 R8 G1.500   |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST  | CCOST  | FP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|--------|--------|-----|------|
| 1272.0 | 18.5 | 20.0 | 158 | 9.2 | 1.40 | 0.05  | 511   | 296    | 32062  | 8.4 | 18.6 |
| 1273.0 | 15.5 | 30.0 | 80  | 9.2 | 1.40 | 0.12  | 822   | 354    | 16208  | 8.4 | 18.6 |
| 1274.0 | 23.4 | 30.0 | 80  | 9.2 | 1.27 | 0.16  | 1027  | 234    | 10883  | 8.4 | 18.6 |
| 1275.0 | 9.8  | 30.0 | 80  | 9.2 | 1.54 | 0.26  | 1519  | 561    | 8303   | 8.4 | 18.6 |
| 1276.0 | 14.9 | 30.0 | 80  | 9.2 | 1.41 | 0.33  | 1840  | 367    | 6716   | 8.4 | 18.6 |
| 1277.0 | 15.1 | 30.0 | 80  | 9.2 | 1.41 | 0.40  | 2158  | 362    | 5657   | 8.4 | 18.6 |
| 1278.0 | 16.0 | 30.0 | 80  | 9.2 | 1.38 | 0.46  | 2443  | 325    | 4895   | 8.4 | 18.6 |
| 1279.0 | 17.2 | 30.0 | 80  | 9.2 | 1.37 | 0.51  | 2722  | 318    | 4323   | 8.4 | 18.6 |
| 1280.0 | 15.3 | 30.0 | 90  | 9.2 | 1.44 | 0.58  | 3074  | 357    | 3882   | 8.4 | 18.6 |
| 1281.0 | 31.3 | 35.0 | 104 | 9.2 | 1.32 | 0.61  | 3274  | 175    | 3512   | 8.4 | 18.6 |
| 1282.0 | 43.9 | 35.0 | 149 | 9.2 | 1.33 | 0.63  | 3478  | 125    | 3204   | 8.4 | 18.6 |
| 1283.0 | 46.8 | 35.0 | 150 | 9.2 | 1.31 | 0.66  | 3670  | 117    | 2946   | 8.4 | 18.6 |
| 1284.0 | 55.4 | 35.0 | 150 | 9.2 | 1.26 | 0.67  | 3833  | 99     | 2727   | 8.4 | 18.6 |
| 1285.0 | 40.0 | 35.0 | 150 | 9.2 | 1.36 | 0.70  | 4058  | 137    | 2542   | 8.4 | 18.6 |
| 1286.0 | 49.3 | 35.0 | 150 | 9.2 | 1.29 | 0.72  | 4240  | 111    | 2380   | 8.4 | 18.6 |
| 1287.0 | 61.0 | 35.0 | 150 | 9.2 | 1.23 | 0.74  | 4387  | 90     | 2237   | 8.4 | 18.6 |
| 1288.0 | 41.9 | 35.0 | 150 | 9.2 | 1.35 | 0.76  | 4602  | 131    | 2113   | 8.4 | 18.6 |
| 1289.0 | 40.0 | 35.0 | 150 | 9.2 | 1.36 | 0.78  | 4827  | 137    | 2003   | 8.4 | 18.6 |
| 1290.0 | 57.1 | 35.0 | 150 | 9.2 | 1.25 | 0.80  | 4984  | 96     | 1903   | 8.4 | 18.6 |
| 1291.0 | 30.8 | 35.0 | 140 | 9.2 | 1.43 | 0.83  | 5258  | 178    | 1817   | 8.4 | 18.6 |
| 1292.0 | 40.4 | 35.0 | 148 | 9.2 | 1.35 | 0.86  | 5477  | 135    | 1737   | 8.4 | 18.6 |
| 1293.0 | 39.6 | 35.0 | 151 | 9.2 | 1.37 | 0.88  | 5706  | 138    | 1664   | 8.4 | 18.6 |
| 1294.0 | 29.5 | 35.0 | 152 | 9.2 | 1.46 | 0.92  | 6015  | 186    | 1600   | 8.4 | 18.6 |
| 1295.0 | 39.1 | 35.0 | 152 | 9.2 | 1.37 | 0.94  | 6248  | 140    | 1539   | 8.4 | 18.6 |
| 1296.0 | 40.6 | 35.0 | 151 | 9.2 | 1.36 | 0.97  | 6471  | 135    | 1483   | 8.4 | 18.7 |
| 1297.0 | 37.3 | 35.0 | 151 | 9.2 | 1.39 | 1.00  | 6714  | 147    | 1431   | 8.4 | 18.7 |
| 1298.0 | 45.6 | 35.0 | 151 | 9.2 | 1.32 | 1.02  | 6913  | 120    | 1383   | 8.4 | 18.7 |
| 1299.0 | 45.6 | 35.0 | 152 | 9.2 | 1.32 | 1.04  | 7113  | 120    | 1338   | 8.4 | 18.7 |
| 1300.0 | 44.4 | 35.0 | 152 | 9.2 | 1.33 | 1.06  | 7318  | 123    | 1296   | 8.4 | 18.7 |
| 1301.0 | 43.9 | 35.0 | 128 | 9.2 | 1.28 | 1.08  | 7492  | 125    | 1257   | 8.4 | 18.7 |
| 1302.0 | 44.4 | 35.0 | 149 | 9.2 | 1.33 | 1.11  | 7693  | 123    | 1220   | 8.4 | 18.7 |
| 1303.0 | 45.0 | 35.0 | 150 | 9.2 | 1.32 | 1.13  | 7893  | 122    | 1186   | 8.4 | 18.7 |
| 1304.0 | 39.1 | 35.0 | 151 | 9.2 | 1.37 | 1.15  | 8124  | 140    | 1154   | 8.4 | 18.7 |
| 1305.0 | 46.2 | 35.0 | 150 | 9.2 | 1.32 | 1.18  | 8319  | 119    | 1124   | 8.4 | 18.7 |
| 1306.0 | 43.4 | 35.0 | 151 | 9.2 | 1.34 | 1.20  | 8527  | 126    | 1095   | 8.4 | 18.7 |
| 1307.0 | 25.5 | 35.0 | 102 | 9.2 | 1.38 | 1.24  | 8767  | 214    | 1071   | 8.4 | 18.7 |
| 1308.0 | 25.0 | 35.0 | 115 | 9.2 | 1.43 | 1.28  | 9043  | 219    | 1048   | 8.4 | 18.7 |
| 1309.0 | 37.5 | 35.0 | 135 | 9.2 | 1.35 | 1.31  | 9259  | 146    | 1024   | 8.4 | 18.7 |
| 1310.0 | 35.0 | 35.6 | 131 | 9.2 | 1.37 | 1.33  | 9485  | 157    | 1002   | 8.4 | 18.7 |
| 1311.0 | 41.9 | 36.0 | 145 | 9.2 | 1.35 | 1.36  | 9692  | 130.79 | 980.02 | 8.4 | 18.7 |
| 1312.0 | 46.2 | 36.0 | 143 | 9.2 | 1.31 | 1.38  | 9878  | 118.63 | 959.01 | 8.4 | 18.7 |
| 1313.0 | 50.0 | 36.0 | 142 | 9.2 | 1.28 | 1.40  | 10048 | 109.50 | 938.28 | 8.4 | 18.7 |
| 1314.0 | 72.0 | 36.0 | 139 | 9.2 | 1.16 | 1.41  | 10164 | 76.04  | 918.72 | 8.4 | 18.7 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d" c | HOURS | URNS  | ICOST  | CCOST  | PP  | FG   |
|--------|------|------|-----|-----|-------|-------|-------|--------|--------|-----|------|
| 1315.0 | 75.0 | 36.0 | 138 | 9.2 | 1.14  | 1.43  | 10275 | 73.00  | 899.50 | 8.4 | 18.7 |
| 1316.0 | 40.4 | 35.9 | 144 | 9.2 | 1.35  | 1.45  | 10488 | 135.35 | 882.52 | 8.4 | 18.7 |
| 1317.0 | 46.2 | 34.9 | 134 | 9.2 | 1.28  | 1.47  | 10662 | 118.63 | 865.91 | 8.4 | 18.7 |
| 1318.0 | 37.9 | 36.6 | 132 | 9.2 | 1.36  | 1.50  | 10871 | 144.48 | 850.56 | 8.4 | 18.7 |
| 1319.0 | 36.0 | 34.4 | 136 | 9.2 | 1.36  | 1.53  | 11097 | 152.08 | 836.01 | 8.4 | 18.7 |
| 1320.0 | 34.6 | 35.6 | 147 | 9.2 | 1.41  | 1.56  | 11353 | 158.17 | 822.18 | 8.4 | 18.7 |
| 1321.0 | 36.7 | 35.1 | 139 | 9.2 | 1.37  | 1.58  | 11580 | 149.04 | 808.71 | 8.4 | 18.7 |
| 1322.0 | 36.4 | 35.6 | 138 | 9.2 | 1.37  | 1.61  | 11807 | 150.56 | 795.81 | 8.4 | 18.7 |
| 1323.0 | 44.4 | 34.2 | 143 | 9.2 | 1.30  | 1.63  | 12000 | 123.19 | 782.87 | 8.4 | 18.7 |
| 1324.0 | 33.3 | 36.1 | 148 | 9.2 | 1.43  | 1.66  | 12266 | 164.25 | 771.20 | 8.4 | 18.7 |
| 1325.0 | 40.9 | 34.6 | 140 | 9.2 | 1.33  | 1.69  | 12472 | 133.83 | 759.40 | 8.4 | 18.7 |
| 1326.0 | 35.0 | 39.2 | 136 | 9.2 | 1.42  | 1.72  | 12705 | 156.65 | 748.44 | 8.4 | 18.7 |
| 1327.0 | 44.4 | 34.2 | 147 | 9.2 | 1.31  | 1.74  | 12904 | 123.19 | 737.27 | 8.4 | 18.7 |
| 1328.0 | 45.6 | 37.1 | 148 | 9.3 | 1.33  | 1.76  | 13099 | 120.15 | 726.45 | 8.4 | 18.7 |
| 1329.0 | 45.6 | 34.7 | 148 | 9.3 | 1.30  | 1.78  | 13294 | 120.15 | 715.99 | 8.4 | 18.7 |
| 1330.0 | 47.4 | 38.9 | 148 | 9.3 | 1.33  | 1.80  | 13482 | 115.58 | 705.82 | 8.4 | 18.7 |
| 1331.0 | 41.4 | 35.1 | 151 | 9.3 | 1.34  | 1.83  | 13700 | 132.31 | 696.26 | 8.4 | 18.7 |
| 1332.0 | 39.1 | 33.9 | 150 | 9.3 | 1.34  | 1.85  | 13930 | 139.92 | 687.14 | 8.4 | 18.7 |
| 1333.0 | 56.2 | 33.3 | 149 | 9.3 | 1.22  | 1.87  | 14089 | 97.33  | 677.63 | 8.4 | 18.7 |
| 1334.0 | 57.1 | 34.8 | 150 | 9.3 | 1.23  | 1.89  | 14246 | 95.81  | 668.39 | 8.4 | 18.7 |
| 1335.0 | 48.6 | 36.1 | 148 | 9.3 | 1.29  | 1.91  | 14428 | 112.54 | 659.71 | 8.4 | 18.7 |
| 1336.0 | 50.0 | 35.7 | 145 | 9.3 | 1.27  | 1.93  | 14602 | 109.50 | 651.24 | 8.4 | 18.7 |
| 1337.0 | 48.6 | 36.6 | 145 | 9.3 | 1.29  | 1.95  | 14781 | 112.54 | 643.08 | 8.4 | 18.7 |
| 1338.0 | 45.6 | 40.0 | 137 | 9.3 | 1.33  | 1.97  | 14961 | 120.15 | 635.27 | 8.4 | 18.7 |
| 1339.0 | 52.2 | 40.0 | 134 | 9.3 | 1.28  | 1.99  | 15115 | 104.94 | 627.47 | 8.4 | 18.7 |
| 1340.0 | 45.0 | 40.0 | 149 | 9.3 | 1.36  | 2.01  | 15313 | 121.67 | 620.14 | 8.4 | 18.7 |
| 1341.0 | 33.3 | 40.0 | 149 | 9.3 | 1.46  | 2.04  | 15580 | 164.25 | 613.63 | 8.4 | 18.7 |
| 1342.0 | 60.0 | 40.0 | 150 | 9.3 | 1.27  | 2.06  | 15731 | 91.25  | 606.27 | 8.4 | 18.8 |
| 1343.0 | 43.4 | 40.0 | 154 | 9.3 | 1.38  | 2.08  | 15943 | 126.23 | 599.61 | 8.4 | 18.8 |
| 1344.0 | 39.6 | 40.0 | 150 | 9.3 | 1.41  | 2.11  | 16171 | 138.40 | 593.29 | 8.4 | 18.8 |
| 1345.0 | 43.4 | 41.4 | 149 | 9.3 | 1.39  | 2.13  | 16377 | 126.23 | 586.98 | 8.4 | 18.8 |
| 1346.0 | 49.3 | 41.1 | 148 | 9.3 | 1.34  | 2.15  | 16556 | 111.02 | 580.63 | 8.4 | 18.8 |
| 1347.0 | 45.6 | 40.5 | 150 | 9.3 | 1.36  | 2.17  | 16753 | 120.15 | 574.57 | 8.4 | 18.8 |
| 1348.0 | 46.2 | 38.6 | 142 | 9.3 | 1.32  | 2.20  | 16938 | 118.63 | 568.65 | 8.4 | 18.8 |
| 1349.0 | 39.6 | 41.7 | 146 | 9.3 | 1.42  | 2.22  | 17160 | 138.40 | 563.13 | 8.4 | 18.8 |
| 1350.0 | 42.4 | 42.7 | 151 | 9.3 | 1.41  | 2.24  | 17374 | 129.27 | 557.64 | 8.4 | 18.8 |
| 1351.0 | 47.4 | 38.1 | 165 | 9.3 | 1.36  | 2.27  | 17583 | 115.58 | 552.12 | 8.4 | 18.8 |
| 1352.0 | 40.4 | 40.8 | 151 | 9.3 | 1.41  | 2.29  | 17806 | 135.35 | 546.97 | 8.4 | 18.8 |
| 1353.0 | 42.4 | 40.5 | 147 | 9.3 | 1.38  | 2.31  | 18014 | 129.27 | 541.88 | 8.4 | 18.8 |
| 1354.0 | 56.2 | 37.6 | 145 | 9.3 | 1.25  | 2.33  | 18169 | 97.33  | 536.52 | 8.4 | 18.8 |
| 1355.0 | 54.5 | 38.8 | 146 | 9.3 | 1.28  | 2.35  | 18330 | 100.38 | 531.33 | 8.4 | 18.8 |
| 1356.0 | 47.4 | 39.1 | 147 | 9.3 | 1.33  | 2.37  | 18516 | 115.58 | 526.44 | 8.4 | 18.8 |
| 1357.0 | 42.9 | 40.2 | 148 | 9.3 | 1.38  | 2.39  | 18724 | 127.75 | 521.80 | 8.4 | 18.8 |
| 1358.0 | 60.0 | 35.9 | 146 | 9.3 | 1.22  | 2.41  | 18870 | 91.25  | 516.85 | 8.4 | 18.8 |
| 1359.0 | 50.0 | 39.9 | 162 | 9.3 | 1.35  | 2.43  | 19064 | 109.50 | 512.22 | 8.4 | 18.8 |
| 1360.0 | 42.9 | 38.7 | 161 | 9.3 | 1.39  | 2.45  | 19289 | 127.75 | 507.90 | 8.4 | 18.8 |
| 1361.0 | 55.4 | 40.6 | 159 | 9.3 | 1.32  | 2.47  | 19461 | 98.85  | 503.36 | 8.4 | 18.8 |
| 1362.0 | 58.1 | 40.0 | 159 | 9.3 | 1.30  | 2.49  | 19626 | 94.29  | 498.86 | 8.4 | 18.8 |
| 1363.0 | 45.0 | 38.5 | 160 | 9.3 | 1.37  | 2.51  | 19839 | 121.67 | 494.76 | 8.4 | 18.8 |
| 1364.0 | 58.1 | 40.5 | 158 | 9.3 | 1.30  | 2.53  | 20002 | 94.29  | 490.46 | 8.4 | 18.8 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST  | CCOST  | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|--------|--------|-----|------|
| 1365.0 | 52.2 | 38.9 | 160 | 9.3 | 1.32 | 2.55  | 20186 | 104.94 | 486.36 | 8.4 | 18.8 |
| 1366.0 | 43.4 | 43.0 | 160 | 9.3 | 1.43 | 2.57  | 20407 | 126.23 | 482.57 | 8.4 | 18.8 |
| 1367.0 | 46.2 | 40.5 | 145 | 9.3 | 1.35 | 2.59  | 20595 | 118.63 | 478.77 | 8.4 | 18.8 |
| 1368.0 | 42.4 | 40.0 | 147 | 9.3 | 1.38 | 2.62  | 20804 | 129.27 | 475.17 | 8.4 | 18.8 |
| 1369.0 | 55.4 | 41.2 | 152 | 9.3 | 1.31 | 2.63  | 20968 | 98.85  | 471.33 | 8.4 | 18.8 |
| 1370.0 | 40.4 | 40.3 | 152 | 9.3 | 1.41 | 2.66  | 21194 | 135.35 | 467.94 | 8.4 | 18.8 |
| 1371.0 | 50.0 | 37.7 | 153 | 9.3 | 1.31 | 2.68  | 21377 | 109.50 | 464.35 | 8.4 | 18.8 |
| 1372.0 | 41.9 | 35.7 | 153 | 9.3 | 1.35 | 2.70  | 21597 | 130.79 | 461.05 | 8.4 | 18.8 |
| 1373.0 | 48.0 | 38.0 | 152 | 9.3 | 1.33 | 2.72  | 21786 | 114.06 | 457.65 | 8.4 | 18.8 |
| 1374.0 | 53.7 | 39.0 | 152 | 9.3 | 1.30 | 2.74  | 21957 | 101.90 | 454.20 | 8.4 | 18.8 |
| 1375.0 | 54.5 | 38.1 | 155 | 9.3 | 1.29 | 2.76  | 22127 | 100.38 | 450.79 | 8.4 | 18.8 |
| 1376.0 | 52.2 | 40.5 | 135 | 9.3 | 1.28 | 2.78  | 22283 | 104.94 | 447.50 | 8.4 | 18.8 |
| 1377.0 | 56.2 | 41.9 | 146 | 9.3 | 1.30 | 2.80  | 22438 | 97.33  | 444.20 | 8.4 | 18.8 |
| 1378.0 | 50.7 | 39.4 | 154 | 9.3 | 1.33 | 2.82  | 22621 | 107.98 | 441.05 | 8.4 | 18.8 |
| 1379.0 | 50.0 | 40.8 | 155 | 9.3 | 1.35 | 2.84  | 22807 | 109.50 | 437.98 | 8.4 | 18.8 |
| 1380.0 | 45.6 | 39.2 | 153 | 9.3 | 1.36 | 2.86  | 23009 | 120.15 | 435.07 | 8.4 | 18.8 |
| 1381.0 | 50.0 | 37.9 | 153 | 9.3 | 1.31 | 2.88  | 23192 | 109.50 | 432.11 | 8.4 | 18.8 |
| 1382.0 | 44.4 | 38.5 | 154 | 9.3 | 1.36 | 2.90  | 23401 | 123.19 | 429.33 | 8.4 | 18.8 |
| 1383.0 | 37.5 | 32.6 | 85  | 9.3 | 1.16 | 2.93  | 23537 | 146.00 | 426.80 | 8.4 | 18.8 |
| 1384.0 | 34.6 | 28.5 | 95  | 9.3 | 1.18 | 2.96  | 23701 | 158.17 | 424.42 | 8.4 | 18.8 |
| 1385.0 | 33.0 | 33.4 | 135 | 9.3 | 1.36 | 2.99  | 23946 | 165.77 | 422.15 | 8.4 | 18.8 |
| 1386.0 | 49.3 | 29.8 | 145 | 9.3 | 1.21 | 3.01  | 24123 | 111.02 | 419.44 | 8.4 | 18.8 |
| 1387.0 | 37.5 | 31.1 | 150 | 9.3 | 1.32 | 3.03  | 24363 | 146.00 | 417.09 | 8.4 | 18.8 |
| 1388.0 | 34.3 | 29.6 | 150 | 9.3 | 1.33 | 3.06  | 24625 | 159.69 | 414.89 | 8.4 | 18.8 |
| 1389.0 | 29.3 | 30.2 | 135 | 9.3 | 1.35 | 3.10  | 24902 | 187.06 | 412.96 | 8.4 | 18.8 |
| 1390.0 | 29.8 | 31.4 | 135 | 9.3 | 1.36 | 3.13  | 25174 | 184.02 | 411.03 | 8.4 | 18.9 |
| 1391.0 | 32.7 | 32.3 | 135 | 9.3 | 1.35 | 3.16  | 25422 | 167.29 | 409.00 | 8.4 | 18.9 |
| 1392.0 | 35.0 | 31.3 | 135 | 9.3 | 1.31 | 3.19  | 25654 | 156.65 | 406.92 | 8.4 | 18.9 |
| 1393.0 | 27.5 | 30.2 | 140 | 9.3 | 1.38 | 3.23  | 25958 | 199.23 | 405.21 | 8.4 | 18.9 |
| 1394.0 | 31.9 | 30.2 | 139 | 9.3 | 1.34 | 3.26  | 26219 | 171.85 | 403.32 | 8.4 | 18.9 |
| 1395.0 | 38.3 | 29.6 | 122 | 9.3 | 1.23 | 3.28  | 26410 | 142.96 | 401.22 | 8.4 | 18.9 |
| 1396.0 | 33.6 | 31.1 | 137 | 9.3 | 1.33 | 3.31  | 26654 | 162.73 | 399.31 | 8.4 | 18.9 |
| 1397.0 | 30.0 | 30.4 | 139 | 9.3 | 1.36 | 3.35  | 26931 | 182.50 | 397.59 | 8.4 | 18.9 |
| 1398.0 | 33.3 | 30.5 | 140 | 9.3 | 1.33 | 3.38  | 27183 | 164.25 | 395.75 | 8.4 | 18.9 |
| 1399.0 | 28.8 | 31.3 | 142 | 9.3 | 1.39 | 3.41  | 27478 | 190.10 | 394.14 | 8.4 | 18.9 |
| 1400.0 | 28.8 | 31.2 | 147 | 9.3 | 1.40 | 3.45  | 27785 | 190.10 | 392.56 | 8.4 | 18.9 |
| 1401.0 | 36.0 | 31.7 | 144 | 9.3 | 1.33 | 3.48  | 28025 | 152.08 | 390.71 | 8.4 | 18.9 |
| 1402.0 | 36.7 | 31.4 | 143 | 9.3 | 1.32 | 3.50  | 28259 | 149.04 | 388.87 | 8.4 | 18.9 |
| 1403.0 | 33.0 | 30.9 | 142 | 9.3 | 1.34 | 3.53  | 28517 | 165.77 | 387.18 | 8.4 | 18.9 |
| 1404.0 | 30.5 | 32.4 | 140 | 9.3 | 1.38 | 3.57  | 28793 | 179.46 | 385.62 | 8.4 | 18.9 |
| 1405.0 | 26.7 | 32.6 | 133 | 9.3 | 1.41 | 3.60  | 29091 | 205.31 | 384.27 | 8.4 | 18.9 |
| 1406.0 | 30.3 | 34.7 | 129 | 9.3 | 1.39 | 3.64  | 29348 | 180.98 | 382.76 | 8.4 | 18.9 |
| 1407.0 | 33.0 | 31.9 | 129 | 9.3 | 1.32 | 3.67  | 29582 | 165.77 | 381.17 | 8.4 | 18.9 |
| 1408.0 | 43.9 | 33.9 | 128 | 9.3 | 1.25 | 3.69  | 29756 | 124.71 | 379.30 | 8.4 | 18.9 |
| 1409.0 | 29.3 | 34.2 | 130 | 9.3 | 1.39 | 3.72  | 30024 | 187.06 | 377.90 | 8.4 | 18.9 |
| 1410.0 | 37.1 | 32.8 | 130 | 9.3 | 1.30 | 3.75  | 30235 | 147.52 | 376.25 | 8.4 | 18.9 |
| 1411.0 | 43.4 | 31.1 | 129 | 9.3 | 1.23 | 3.77  | 30413 | 126.23 | 374.46 | 8.4 | 18.9 |
| 1412.0 | 37.1 | 30.0 | 131 | 9.3 | 1.27 | 3.80  | 30624 | 147.52 | 372.85 | 8.4 | 18.9 |
| 1413.0 | 17.0 | 27.1 | 58  | 9.3 | 1.22 | 3.86  | 30828 | 322.42 | 372.50 | 8.4 | 18.9 |
| 1414.0 | 32.1 | 32.2 | 128 | 9.3 | 1.34 | 3.89  | 31068 | 170.33 | 371.08 | 8.4 | 18.9 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST  | CCOST  | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|--------|--------|-----|------|
| 1415.0 | 36.7 | 32.4 | 134 | 9.3 | 1.31 | 3.92  | 31286 | 149.04 | 369.54 | 8.4 | 18.9 |
| 1416.0 | 31.9 | 31.4 | 133 | 9.3 | 1.34 | 3.95  | 31537 | 171.85 | 368.18 | 8.4 | 18.9 |
| 1417.0 | 31.6 | 30.4 | 133 | 9.4 | 1.32 | 3.98  | 31790 | 173.38 | 366.84 | 8.4 | 18.9 |
| 1418.0 | 32.7 | 32.7 | 134 | 9.4 | 1.33 | 4.01  | 32035 | 167.29 | 365.48 | 8.4 | 18.9 |
| 1419.0 | 37.5 | 31.8 | 136 | 9.4 | 1.29 | 4.04  | 32253 | 146.00 | 364.00 | 8.4 | 18.9 |
| 1420.0 | 33.0 | 30.1 | 135 | 9.4 | 1.30 | 4.07  | 32498 | 165.77 | 362.67 | 8.4 | 18.9 |
| 1421.0 | 33.3 | 31.3 | 136 | 9.4 | 1.32 | 4.10  | 32742 | 164.25 | 361.35 | 8.4 | 18.9 |
| 1422.0 | 37.1 | 30.8 | 136 | 9.4 | 1.28 | 4.12  | 32962 | 147.52 | 359.93 | 8.4 | 18.9 |
| 1423.0 | 30.3 | 29.0 | 119 | 9.4 | 1.28 | 4.16  | 33198 | 180.98 | 358.76 | 8.4 | 18.9 |
| 1424.0 | 27.5 | 30.0 | 131 | 9.4 | 1.35 | 4.19  | 33485 | 199.23 | 357.71 | 8.4 | 18.9 |
| 1425.0 | 32.4 | 29.9 | 134 | 9.4 | 1.30 | 4.23  | 33733 | 168.81 | 356.49 | 8.4 | 18.9 |
| 1426.0 | 32.7 | 31.4 | 135 | 9.4 | 1.32 | 4.26  | 33981 | 167.29 | 355.27 | 8.4 | 18.9 |
| 1427.0 | 32.4 | 32.4 | 130 | 9.4 | 1.32 | 4.29  | 34221 | 168.81 | 354.07 | 8.4 | 18.9 |
| 1428.0 | 39.6 | 33.1 | 132 | 9.4 | 1.27 | 4.31  | 34421 | 138.40 | 352.70 | 8.4 | 18.9 |
| 1429.0 | 48.0 | 31.5 | 136 | 9.4 | 1.21 | 4.33  | 34591 | 114.06 | 351.19 | 8.4 | 18.9 |
| 1430.0 | 38.3 | 31.0 | 139 | 9.4 | 1.28 | 4.36  | 34809 | 142.96 | 349.88 | 8.4 | 18.9 |
| 1431.0 | 44.4 | 29.6 | 136 | 9.4 | 1.21 | 4.38  | 34993 | 123.19 | 348.46 | 8.4 | 18.9 |
| 1432.0 | 46.2 | 30.4 | 138 | 9.4 | 1.21 | 4.40  | 35173 | 118.63 | 347.03 | 8.4 | 18.9 |
| 1433.0 | 43.4 | 28.0 | 129 | 9.4 | 1.18 | 4.43  | 35351 | 126.23 | 345.67 | 8.4 | 18.9 |
| 1434.0 | 44.4 | 28.4 | 131 | 9.4 | 1.18 | 4.45  | 35528 | 123.19 | 344.30 | 8.4 | 18.9 |
| 1435.0 | 46.8 | 27.6 | 131 | 9.4 | 1.16 | 4.47  | 35696 | 117.10 | 342.92 | 8.4 | 18.9 |
| 1436.0 | 46.2 | 29.8 | 130 | 9.4 | 1.19 | 4.49  | 35865 | 118.63 | 341.56 | 8.4 | 18.9 |
| 1437.0 | 41.4 | 30.7 | 129 | 9.4 | 1.23 | 4.52  | 36052 | 132.31 | 340.30 | 8.4 | 18.9 |
| 1438.0 | 40.9 | 29.9 | 130 | 9.4 | 1.22 | 4.54  | 36243 | 133.83 | 339.06 | 8.4 | 18.9 |
| 1439.0 | 45.6 | 29.9 | 131 | 9.4 | 1.19 | 4.56  | 36415 | 120.15 | 337.76 | 8.4 | 19.0 |
| 1440.0 | 42.9 | 31.6 | 133 | 9.4 | 1.24 | 4.59  | 36601 | 127.75 | 336.52 | 8.4 | 19.0 |
| 1441.0 | 40.4 | 30.0 | 124 | 9.4 | 1.22 | 4.61  | 36785 | 135.35 | 335.33 | 8.4 | 19.0 |
| 1442.0 | 41.0 | 30.0 | 125 | 9.4 | 1.21 | 4.63  | 36968 | 133.54 | 334.15 | 8.4 | 19.0 |
| 1443.0 | 38.1 | 28.2 | 124 | 9.4 | 1.21 | 4.66  | 37164 | 143.72 | 333.05 | 8.4 | 19.0 |
| 1444.0 | 30.3 | 28.6 | 136 | 9.4 | 1.31 | 4.69  | 37434 | 180.98 | 332.17 | 8.4 | 19.0 |
| 1445.0 | 28.6 | 30.0 | 138 | 9.4 | 1.35 | 4.73  | 37723 | 191.63 | 331.36 | 8.4 | 19.0 |
| 1446.0 | 38.3 | 28.3 | 116 | 9.4 | 1.19 | 4.75  | 37906 | 142.96 | 330.28 | 8.4 | 19.0 |
| 1447.0 | 45.6 | 29.2 | 126 | 9.4 | 1.17 | 4.78  | 38072 | 120.15 | 329.09 | 8.4 | 19.0 |
| 1448.0 | 31.0 | 29.5 | 126 | 9.4 | 1.29 | 4.81  | 38315 | 176.42 | 328.23 | 8.4 | 19.0 |
| 1449.0 | 37.9 | 30.2 | 124 | 9.4 | 1.24 | 4.84  | 38511 | 144.48 | 327.19 | 8.4 | 19.0 |
| 1450.0 | 41.9 | 28.6 | 125 | 9.4 | 1.19 | 4.86  | 38690 | 130.79 | 326.10 | 8.4 | 19.0 |
| 1451.0 | 40.4 | 28.2 | 99  | 9.4 | 1.13 | 4.88  | 38838 | 135.35 | 325.04 | 8.4 | 19.0 |
| 1452.0 | 35.0 | 31.0 | 123 | 9.4 | 1.27 | 4.91  | 39049 | 156.65 | 324.11 | 8.4 | 19.0 |
| 1453.0 | 35.3 | 30.7 | 142 | 9.4 | 1.30 | 4.94  | 39291 | 155.13 | 323.18 | 8.4 | 19.0 |
| 1454.0 | 26.5 | 33.5 | 144 | 9.4 | 1.43 | 4.98  | 39616 | 206.83 | 322.54 | 8.4 | 19.0 |
| 1455.0 | 36.0 | 30.5 | 136 | 9.4 | 1.28 | 5.01  | 39843 | 152.08 | 321.62 | 8.4 | 19.0 |
| 1456.0 | 33.3 | 31.4 | 128 | 9.4 | 1.30 | 5.04  | 40074 | 164.25 | 320.77 | 8.4 | 19.0 |
| 1457.0 | 32.1 | 30.3 | 130 | 9.4 | 1.30 | 5.07  | 40317 | 170.33 | 319.96 | 8.4 | 19.0 |
| 1458.0 | 35.0 | 31.2 | 127 | 9.4 | 1.28 | 5.10  | 40534 | 156.65 | 319.08 | 8.4 | 19.0 |
| 1459.0 | 34.6 | 30.4 | 127 | 9.4 | 1.27 | 5.13  | 40754 | 158.17 | 318.23 | 8.4 | 19.0 |
| 1460.0 | 35.3 | 32.5 | 126 | 9.4 | 1.29 | 5.15  | 40969 | 155.13 | 317.36 | 8.4 | 19.0 |
| 1461.0 | 35.3 | 30.9 | 127 | 9.4 | 1.27 | 5.18  | 41185 | 155.13 | 316.51 | 8.4 | 19.0 |
| 1462.0 | 27.7 | 29.8 | 113 | 9.4 | 1.30 | 5.22  | 41429 | 197.71 | 315.89 | 8.4 | 19.0 |
| 1463.0 | 31.3 | 29.3 | 127 | 9.4 | 1.29 | 5.25  | 41673 | 174.90 | 315.15 | 8.4 | 19.0 |
| 1464.0 | 30.0 | 29.7 | 126 | 9.4 | 1.31 | 5.28  | 41926 | 182.50 | 314.47 | 8.4 | 19.0 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | URNS  | ICOST  | CCOST  | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|--------|--------|-----|------|
| 1465.0 | 28.6 | 31.1 | 127 | 9.4 | 1.34 | 5.32  | 42193 | 191.63 | 313.83 | 8.4 | 19.0 |
| 1466.0 | 31.3 | 31.6 | 127 | 9.4 | 1.32 | 5.35  | 42436 | 174.90 | 313.12 | 8.4 | 19.0 |
| 1467.0 | 30.8 | 32.5 | 128 | 9.4 | 1.34 | 5.38  | 42686 | 177.94 | 312.43 | 8.4 | 19.0 |
| 1468.0 | 40.0 | 32.7 | 129 | 9.4 | 1.26 | 5.41  | 42879 | 136.88 | 311.54 | 8.4 | 19.0 |
| 1469.0 | 34.3 | 32.9 | 131 | 9.4 | 1.31 | 5.44  | 43108 | 159.69 | 310.77 | 8.4 | 19.0 |
| 1470.0 | 36.0 | 32.5 | 131 | 9.4 | 1.30 | 5.46  | 43326 | 152.08 | 309.98 | 8.4 | 19.0 |
| 1471.0 | 33.0 | 32.3 | 128 | 9.4 | 1.31 | 5.49  | 43558 | 165.77 | 309.26 | 8.4 | 19.0 |
| 1472.0 | 29.5 | 31.5 | 128 | 9.4 | 1.34 | 5.53  | 43818 | 185.54 | 308.64 | 8.4 | 19.0 |
| 1473.0 | 28.6 | 28.2 | 138 | 9.4 | 1.33 | 5.56  | 44108 | 191.63 | 308.06 | 8.4 | 19.0 |
| 1474.0 | 26.7 | 29.7 | 139 | 9.4 | 1.37 | 5.60  | 44420 | 205.31 | 307.55 | 8.4 | 19.0 |
| 1475.0 | 29.8 | 31.3 | 138 | 9.4 | 1.36 | 5.63  | 44699 | 184.02 | 306.95 | 8.4 | 19.0 |
| 1476.0 | 36.0 | 31.3 | 138 | 9.4 | 1.30 | 5.66  | 44929 | 152.08 | 306.19 | 8.4 | 19.0 |
| 1477.0 | 31.9 | 31.2 | 139 | 9.4 | 1.34 | 5.69  | 45191 | 171.85 | 305.54 | 8.4 | 19.0 |
| 1478.0 | 38.3 | 29.5 | 144 | 9.4 | 1.27 | 5.72  | 45416 | 142.96 | 304.76 | 8.4 | 19.0 |
| 1479.0 | 37.9 | 29.1 | 144 | 9.4 | 1.27 | 5.75  | 45645 | 144.48 | 303.98 | 8.4 | 19.0 |
| 1480.0 | 34.3 | 31.0 | 142 | 9.4 | 1.32 | 5.78  | 45894 | 159.69 | 303.29 | 8.4 | 19.0 |
| 1481.0 | 34.3 | 32.0 | 122 | 9.4 | 1.28 | 5.80  | 46108 | 159.69 | 302.61 | 8.4 | 19.0 |
| 1482.0 | 34.6 | 28.8 | 130 | 9.4 | 1.26 | 5.83  | 46333 | 158.17 | 301.93 | 8.4 | 19.0 |
| 1483.0 | 31.9 | 27.6 | 134 | 9.4 | 1.28 | 5.87  | 46586 | 171.85 | 301.31 | 8.4 | 19.0 |
| 1484.0 | 34.6 | 28.0 | 134 | 9.4 | 1.26 | 5.89  | 46818 | 158.17 | 300.64 | 8.4 | 19.0 |
| 1485.0 | 27.9 | 27.9 | 134 | 9.4 | 1.32 | 5.93  | 47106 | 196.19 | 300.15 | 8.4 | 19.0 |
| 1486.0 | 34.0 | 27.6 | 136 | 9.4 | 1.26 | 5.96  | 47347 | 161.21 | 299.51 | 8.4 | 19.0 |
| 1487.0 | 27.7 | 28.8 | 142 | 9.4 | 1.35 | 6.00  | 47654 | 197.71 | 299.03 | 8.4 | 19.0 |
| 1488.0 | 25.9 | 29.0 | 142 | 9.4 | 1.38 | 6.03  | 47982 | 211.40 | 298.63 | 8.4 | 19.0 |
| 1489.0 | 22.5 | 31.8 | 141 | 9.4 | 1.46 | 6.08  | 48359 | 243.33 | 298.38 | 8.4 | 19.0 |
| 1490.0 | 23.8 | 31.0 | 141 | 9.4 | 1.43 | 6.12  | 48715 | 229.65 | 298.06 | 8.4 | 19.1 |
| 1491.0 | 30.3 | 29.7 | 133 | 9.4 | 1.32 | 6.15  | 48978 | 180.98 | 297.53 | 8.4 | 19.1 |
| 1492.0 | 33.6 | 28.7 | 134 | 9.4 | 1.28 | 6.18  | 49217 | 162.73 | 296.92 | 8.4 | 19.1 |
| 1493.0 | 24.5 | 28.7 | 132 | 9.4 | 1.37 | 6.22  | 49541 | 223.56 | 296.59 | 8.4 | 19.1 |
| 1494.0 | 17.1 | 30.8 | 132 | 9.4 | 1.50 | 6.28  | 50004 | 320.90 | 296.70 | 8.4 | 19.1 |
| 1495.0 | 15.5 | 31.8 | 137 | 9.4 | 1.56 | 6.35  | 50533 | 352.83 | 296.95 | 8.4 | 19.1 |
| 1496.0 | 23.2 | 30.6 | 135 | 9.4 | 1.41 | 6.39  | 50882 | 235.73 | 296.68 | 8.4 | 19.1 |
| 1497.0 | 25.5 | 28.7 | 136 | 9.4 | 1.36 | 6.43  | 51201 | 214.44 | 296.31 | 8.4 | 19.1 |
| 1498.0 | 24.5 | 30.5 | 137 | 9.4 | 1.40 | 6.47  | 51538 | 223.56 | 295.99 | 8.4 | 19.1 |
| 1499.0 | 20.7 | 30.7 | 134 | 9.4 | 1.45 | 6.52  | 51925 | 264.63 | 295.86 | 8.4 | 19.1 |
| 1500.0 | 22.2 | 30.5 | 133 | 9.4 | 1.42 | 6.56  | 52283 | 246.38 | 295.64 | 8.4 | 19.1 |
| 1501.0 | 29.0 | 31.6 | 122 | 9.4 | 1.33 | 6.60  | 52536 | 188.58 | 295.17 | 8.4 | 19.1 |
| 1502.0 | 23.2 | 31.8 | 124 | 9.4 | 1.41 | 6.64  | 52857 | 235.73 | 294.92 | 8.4 | 19.1 |
| 1503.0 | 25.7 | 30.7 | 126 | 9.4 | 1.37 | 6.68  | 53152 | 212.92 | 294.56 | 8.4 | 19.1 |
| 1504.0 | 23.2 | 34.7 | 126 | 9.4 | 1.45 | 6.72  | 53478 | 235.73 | 294.31 | 8.4 | 19.1 |
| 1505.0 | 23.5 | 33.2 | 127 | 9.4 | 1.43 | 6.77  | 53803 | 232.69 | 294.05 | 8.4 | 19.1 |
| 1506.0 | 19.0 | 31.8 | 130 | 9.4 | 1.48 | 6.82  | 54211 | 287.44 | 294.02 | 8.4 | 19.1 |
| 1507.0 | 19.6 | 30.3 | 130 | 9.4 | 1.45 | 6.87  | 54609 | 279.83 | 293.96 | 8.4 | 19.1 |
| 1508.0 | 20.6 | 30.0 | 129 | 9.4 | 1.43 | 6.92  | 54985 | 266.15 | 293.84 | 8.4 | 19.1 |
| 1509.0 | 21.4 | 29.1 | 125 | 9.4 | 1.40 | 6.96  | 55334 | 255.50 | 293.68 | 8.4 | 19.1 |
| 1510.0 | 16.8 | 28.5 | 133 | 9.4 | 1.48 | 7.02  | 55808 | 325.46 | 293.81 | 8.4 | 19.1 |
| 1511.0 | 23.1 | 29.6 | 125 | 9.4 | 1.38 | 7.07  | 56134 | 237.25 | 293.58 | 8.4 | 19.1 |
| 1512.0 | 32.7 | 30.3 | 124 | 9.4 | 1.28 | 7.10  | 56362 | 167.29 | 293.05 | 8.4 | 19.1 |
| 1513.0 | 38.3 | 30.0 | 124 | 9.4 | 1.23 | 7.12  | 56556 | 142.96 | 292.43 | 8.4 | 19.1 |
| 1514.0 | 48.0 | 27.4 | 125 | 9.4 | 1.14 | 7.14  | 56712 | 114.06 | 291.70 | 8.4 | 19.1 |

| DEPTH  | ROP   | WOB  | RPM | MW  | "d"e | HOURS | URNS  | ICOST  | CCOST  | PP  | FG   |
|--------|-------|------|-----|-----|------|-------|-------|--------|--------|-----|------|
| 1515.0 | 49.3  | 27.2 | 127 | 9.4 | 1.13 | 7.16  | 56866 | 111.02 | 290.96 | 8.4 | 19.1 |
| 1516.0 | 50.7  | 27.6 | 128 | 9.4 | 1.13 | 7.18  | 57018 | 107.98 | 290.21 | 8.4 | 19.1 |
| 1517.0 | 47.4  | 27.9 | 127 | 9.4 | 1.15 | 7.21  | 57179 | 115.58 | 289.50 | 8.4 | 19.1 |
| 1518.0 | 45.6  | 27.4 | 124 | 9.4 | 1.15 | 7.23  | 57342 | 120.15 | 288.82 | 8.4 | 19.1 |
| 1519.0 | 47.4  | 28.4 | 117 | 9.4 | 1.13 | 7.25  | 57491 | 115.58 | 288.12 | 8.4 | 19.1 |
| 1520.0 | 49.3  | 30.0 | 120 | 9.4 | 1.14 | 7.27  | 57637 | 111.02 | 287.41 | 8.4 | 19.1 |
| 1521.0 | 56.2  | 30.0 | 123 | 9.4 | 1.11 | 7.29  | 57768 | 97.33  | 286.65 | 8.4 | 19.1 |
| 1522.0 | 58.1  | 30.0 | 124 | 9.4 | 1.10 | 7.30  | 57896 | 94.29  | 285.88 | 8.4 | 19.1 |
| 1523.0 | 34.0  | 30.0 | 132 | 9.4 | 1.29 | 7.33  | 58130 | 161.21 | 285.39 | 8.4 | 19.1 |
| 1524.0 | 44.4  | 30.0 | 135 | 9.4 | 1.21 | 7.36  | 58313 | 123.19 | 284.75 | 8.4 | 19.1 |
| 1525.0 | 94.7  | 30.0 | 129 | 9.4 | 0.97 | 7.37  | 58394 | 57.79  | 283.85 | 8.4 | 19.1 |
| 1526.0 | 76.6  | 30.0 | 140 | 9.4 | 1.06 | 7.38  | 58504 | 71.48  | 283.02 | 8.4 | 19.1 |
| 1527.0 | 87.8  | 30.0 | 155 | 9.4 | 1.05 | 7.39  | 58610 | 62.35  | 282.16 | 8.4 | 19.1 |
| 1528.0 | 5.9   | 30.0 | 150 | 9.4 | 1.85 | 7.56  | 60141 | 933.79 | 284.69 | 8.4 | 19.1 |
| 1529.0 | 14.6  | 35.0 | 161 | 9.6 | 1.64 | 7.63  | 60800 | 374.12 | 285.04 | 8.4 | 19.1 |
| 1530.0 | 65.5  | 35.0 | 149 | 9.6 | 1.15 | 7.65  | 60937 | 83.65  | 284.26 | 8.4 | 19.1 |
| 1531.0 | 83.7  | 35.0 | 154 | 9.6 | 1.09 | 7.66  | 61047 | 65.40  | 283.42 | 8.4 | 19.1 |
| 1532.0 | 10.9  | 35.0 | 155 | 9.6 | 1.72 | 7.75  | 61897 | 500.35 | 284.25 | 8.4 | 19.1 |
| 1533.0 | 45.6  | 35.0 | 151 | 9.6 | 1.27 | 7.77  | 62096 | 120.15 | 283.62 | 8.4 | 19.1 |
| 1534.0 | 97.3  | 35.0 | 151 | 9.6 | 1.03 | 7.78  | 62189 | 56.27  | 282.76 | 8.4 | 19.1 |
| 1535.0 | 66.7  | 35.0 | 152 | 9.6 | 1.15 | 7.80  | 62326 | 82.13  | 282.00 | 8.4 | 19.1 |
| 1536.0 | 116.1 | 35.0 | 151 | 9.6 | 0.98 | 7.80  | 62404 | 47.15  | 281.11 | 8.4 | 19.1 |
| 1537.0 | 138.5 | 35.0 | 148 | 9.6 | 0.92 | 7.81  | 62468 | 39.54  | 280.21 | 8.4 | 19.1 |
| 1538.0 | 150.0 | 35.0 | 148 | 9.6 | 0.89 | 7.82  | 62527 | 36.50  | 279.29 | 8.4 | 19.1 |
| 1539.0 | 14.0  | 35.0 | 152 | 9.6 | 1.63 | 7.89  | 63179 | 390.85 | 279.71 | 8.4 | 19.1 |
| 1540.0 | 20.0  | 35.0 | 148 | 9.6 | 1.51 | 7.94  | 63621 | 273.75 | 279.69 | 8.4 | 19.1 |
| 1541.0 | 11.5  | 35.0 | 154 | 9.6 | 1.70 | 8.03  | 64429 | 477.54 | 280.42 | 8.4 | 19.1 |
| 1542.0 | 8.5   | 35.0 | 157 | 9.6 | 1.80 | 8.14  | 65532 | 641.79 | 281.75 | 8.4 | 19.2 |
| 1543.0 | 9.9   | 20.0 | 156 | 9.6 | 1.50 | 8.25  | 66478 | 554.26 | 282.76 | 8.4 | 19.2 |
| 1544.0 | 7.8   | 20.0 | 144 | 9.6 | 1.54 | 8.37  | 67595 | 705.67 | 284.30 | 8.4 | 19.2 |
| 1545.0 | 7.2   | 30.0 | 142 | 9.6 | 1.74 | 8.51  | 68775 | 758.90 | 286.04 | 8.4 | 19.2 |
| 1546.0 | 22.4  | 30.0 | 133 | 9.6 | 1.38 | 8.56  | 69131 | 244.85 | 285.89 | 8.4 | 19.2 |
| 1547.0 | 26.3  | 30.0 | 131 | 9.6 | 1.33 | 8.60  | 69430 | 208.35 | 285.61 | 8.4 | 19.2 |
| 1548.0 | 18.8  | 30.0 | 131 | 9.6 | 1.43 | 8.65  | 69848 | 292.00 | 285.63 | 8.4 | 19.2 |
| 1549.0 | 25.0  | 30.0 | 143 | 9.6 | 1.37 | 8.69  | 70191 | 219.00 | 285.39 | 8.4 | 19.2 |
| 1550.0 | 11.6  | 15.0 | 130 | 9.6 | 1.32 | 8.78  | 70867 | 472.98 | 286.06 | 8.4 | 19.2 |
| 1551.0 | 19.3  | 30.0 | 145 | 9.6 | 1.45 | 8.83  | 71319 | 284.40 | 286.06 | 8.4 | 19.2 |
| 1552.0 | 18.4  | 25.0 | 141 | 9.6 | 1.39 | 8.88  | 71780 | 298.08 | 286.10 | 8.4 | 19.2 |
| 1553.0 | 21.6  | 25.0 | 140 | 9.6 | 1.34 | 8.93  | 72170 | 253.98 | 285.98 | 8.4 | 19.2 |
| 1554.0 | 19.3  | 25.0 | 150 | 9.6 | 1.39 | 8.98  | 72639 | 284.40 | 285.98 | 8.4 | 19.2 |
| 1555.0 | 24.0  | 25.0 | 164 | 9.6 | 1.36 | 9.02  | 73049 | 228.13 | 285.78 | 8.4 | 19.2 |
| 1556.0 | 28.8  | 25.0 | 162 | 9.6 | 1.30 | 9.06  | 73387 | 190.10 | 285.44 | 8.4 | 19.2 |
| 1557.0 | 28.6  | 25.0 | 163 | 9.6 | 1.31 | 9.09  | 73730 | 191.63 | 285.11 | 8.4 | 19.2 |
| 1558.0 | 29.3  | 30.0 | 171 | 9.6 | 1.38 | 9.13  | 74081 | 187.06 | 284.77 | 8.4 | 19.2 |
| 1559.0 | 34.3  | 30.0 | 167 | 9.6 | 1.33 | 9.15  | 74373 | 159.69 | 284.34 | 8.4 | 19.2 |
| 1560.0 | 35.3  | 30.0 | 167 | 9.6 | 1.32 | 9.18  | 74657 | 155.13 | 283.89 | 8.4 | 19.2 |
| 1561.0 | 24.7  | 30.0 | 167 | 9.6 | 1.42 | 9.22  | 75065 | 222.04 | 283.68 | 8.4 | 19.2 |
| 1562.0 | 16.2  | 30.0 | 167 | 9.6 | 1.55 | 9.29  | 75684 | 337.63 | 283.86 | 8.4 | 19.2 |
| 1563.0 | 29.0  | 30.0 | 166 | 9.6 | 1.37 | 9.32  | 76026 | 188.58 | 283.53 | 8.4 | 19.2 |
| 1564.0 | 29.0  | 30.0 | 167 | 9.6 | 1.38 | 9.35  | 76372 | 188.58 | 283.21 | 8.4 | 19.2 |

| DEPTH  | ROP   | WOB  | RPM | MW  | "d"c | HOURS | TURNS  | ICOST  | CCOST  | PP  | FG   |
|--------|-------|------|-----|-----|------|-------|--------|--------|--------|-----|------|
| 1565.0 | 26.1  | 30.0 | 167 | 9.6 | 1.41 | 9.39  | 76756  | 209.88 | 282.96 | 8.4 | 19.2 |
| 1566.0 | 28.3  | 30.0 | 159 | 9.6 | 1.37 | 9.43  | 77093  | 193.15 | 282.66 | 8.4 | 19.2 |
| 1567.0 | 33.0  | 30.0 | 156 | 9.6 | 1.32 | 9.46  | 77376  | 165.77 | 282.26 | 8.4 | 19.2 |
| 1568.0 | 19.6  | 30.0 | 155 | 9.7 | 1.45 | 9.51  | 77851  | 279.83 | 282.25 | 8.4 | 19.2 |
| 1569.0 | 38.3  | 30.0 | 165 | 9.7 | 1.28 | 9.54  | 78110  | 142.96 | 281.79 | 8.4 | 19.2 |
| 1570.0 | 30.5  | 30.0 | 165 | 9.7 | 1.34 | 9.57  | 78433  | 179.46 | 281.44 | 8.4 | 19.2 |
| 1571.0 | 35.0  | 30.0 | 161 | 9.7 | 1.30 | 9.60  | 78710  | 156.65 | 281.03 | 8.4 | 19.2 |
| 1572.0 | 36.0  | 30.0 | 163 | 9.7 | 1.29 | 9.62  | 78982  | 152.08 | 280.60 | 8.4 | 19.2 |
| 1573.0 | 37.5  | 30.0 | 166 | 9.7 | 1.28 | 9.65  | 79248  | 146.00 | 280.15 | 8.4 | 19.2 |
| 1574.0 | 38.7  | 30.0 | 165 | 9.7 | 1.27 | 9.68  | 79503  | 141.44 | 279.70 | 8.4 | 19.2 |
| 1575.0 | 25.2  | 30.0 | 166 | 9.7 | 1.40 | 9.72  | 79899  | 217.48 | 279.49 | 8.4 | 19.2 |
| 1576.0 | 18.8  | 30.0 | 166 | 9.7 | 1.49 | 9.77  | 80430  | 292.00 | 279.53 | 8.4 | 19.2 |
| 1577.0 | 31.3  | 25.0 | 161 | 9.7 | 1.26 | 9.80  | 80739  | 174.90 | 279.19 | 8.4 | 19.2 |
| 1578.0 | 27.5  | 25.0 | 164 | 9.7 | 1.30 | 9.84  | 81097  | 199.23 | 278.93 | 8.4 | 19.2 |
| 1579.0 | 33.3  | 25.0 | 165 | 9.7 | 1.25 | 9.87  | 81395  | 164.25 | 278.56 | 8.4 | 19.2 |
| 1580.0 | 40.4  | 25.0 | 165 | 9.7 | 1.20 | 9.89  | 81640  | 135.35 | 278.09 | 8.4 | 19.2 |
| 1581.0 | 34.6  | 25.0 | 166 | 9.7 | 1.24 | 9.92  | 81927  | 158.17 | 277.71 | 8.4 | 19.2 |
| 1582.0 | 35.3  | 25.0 | 166 | 9.7 | 1.24 | 9.95  | 82209  | 155.13 | 277.31 | 8.4 | 19.2 |
| 1583.0 | 30.0  | 25.0 | 166 | 9.7 | 1.28 | 9.98  | 82541  | 182.50 | 277.01 | 8.4 | 19.2 |
| 1584.0 | 28.3  | 25.0 | 166 | 9.7 | 1.30 | 10.02 | 82892  | 193.15 | 276.74 | 8.4 | 19.2 |
| 1585.0 | 19.7  | 25.0 | 167 | 9.7 | 1.40 | 10.07 | 83402  | 278.31 | 276.75 | 8.4 | 19.2 |
| 1586.0 | 6.3   | 25.0 | 163 | 9.6 | 1.73 | 10.23 | 84961  | 874.48 | 278.64 | 8.4 | 19.2 |
| 1587.0 | 5.0   | 25.0 | 165 | 9.6 | 1.80 | 10.43 | 86943  | 1095   | 281    | 8.4 | 19.2 |
| 1588.0 | 5.1   | 30.0 | 169 | 9.6 | 1.89 | 10.63 | 88935  | 1078   | 284    | 8.4 | 19.2 |
| 1589.0 | 6.0   | 40.0 | 150 | 9.6 | 1.97 | 10.79 | 90429  | 907.94 | 285.70 | 8.4 | 19.2 |
| 1590.0 | 5.7   | 40.0 | 110 | 9.6 | 1.89 | 10.97 | 91595  | 967.25 | 287.84 | 8.4 | 19.2 |
| 1591.0 | 14.1  | 45.0 | 110 | 9.6 | 1.65 | 11.04 | 92062  | 387.81 | 288.15 | 8.4 | 19.2 |
| 1592.0 | 6.5   | 45.0 | 110 | 9.6 | 1.91 | 11.19 | 93070  | 836.46 | 289.86 | 8.4 | 19.2 |
| 1593.0 | 12.6  | 45.0 | 110 | 9.6 | 1.69 | 11.27 | 93593  | 433.44 | 290.31 | 8.4 | 19.2 |
| 1594.0 | 13.3  | 35.0 | 140 | 9.6 | 1.62 | 11.35 | 94223  | 410.63 | 290.68 | 8.4 | 19.2 |
| 1595.0 | 7.2   | 30.0 | 140 | 9.6 | 1.73 | 11.49 | 95390  | 760.42 | 292.13 | 8.4 | 19.3 |
| 1596.0 | 15.0  | 35.0 | 120 | 9.6 | 1.54 | 11.55 | 95870  | 365.00 | 292.35 | 8.4 | 19.3 |
| 1597.0 | 42.4  | 45.0 | 100 | 9.6 | 1.26 | 11.58 | 96011  | 129.27 | 291.85 | 8.4 | 19.3 |
| 1598.0 | 14.7  | 40.0 | 120 | 9.6 | 1.61 | 11.64 | 96501  | 372.60 | 292.10 | 8.4 | 19.3 |
| 1599.0 | 2.7   | 30.0 | 140 | 9.6 | 2.03 | 12.02 | 99628  | 2038   | 297    | 8.4 | 19.3 |
| 1600.0 | 7.3   | 45.0 | 100 | 9.6 | 1.84 | 12.15 | 100445 | 745.21 | 298.78 | 8.4 | 19.3 |
| 1601.0 | 14.7  | 35.0 | 160 | 9.6 | 1.63 | 12.22 | 101098 | 372.60 | 299.01 | 8.4 | 19.3 |
| 1602.0 | 45.0  | 40.0 | 100 | 9.6 | 1.19 | 12.24 | 101231 | 121.67 | 298.47 | 8.4 | 19.3 |
| 1603.0 | 24.0  | 40.0 | 100 | 9.6 | 1.39 | 12.28 | 101481 | 228.13 | 298.26 | 8.4 | 19.3 |
| 1604.0 | 102.9 | 40.0 | 100 | 9.6 | 0.93 | 12.29 | 101540 | 53.23  | 297.52 | 8.4 | 19.3 |
| 1605.0 | 4.4   | 35.0 | 160 | 9.6 | 2.01 | 12.52 | 103713 | 1239   | 300    | 8.4 | 19.3 |
| 1606.0 | 20.0  | 38.0 | 160 | 9.6 | 1.58 | 12.57 | 104193 | 273.75 | 300.27 | 8.4 | 19.3 |
| 1607.0 | 3.3   | 38.0 | 160 | 9.6 | 2.14 | 12.87 | 107060 | 1635   | 304    | 8.4 | 19.3 |
| 1608.0 | 7.7   | 45.0 | 160 | 9.6 | 1.98 | 13.00 | 108313 | 714.79 | 305.46 | 8.4 | 19.3 |
| 1609.0 | 4.0   | 46.0 | 128 | 9.6 | 2.14 | 13.25 | 110215 | 1361   | 309    | 8.4 | 19.3 |
| 1610.0 | 37.9  | 40.7 | 134 | 9.6 | 1.35 | 13.27 | 110427 | 144.48 | 308.09 | 8.4 | 19.3 |
| 1611.0 | 41.1  | 46.0 | 133 | 9.6 | 1.37 | 13.30 | 110621 | 133.07 | 307.58 | 8.4 | 19.3 |
| 1612.0 | 83.7  | 46.0 | 134 | 9.6 | 1.13 | 13.31 | 110717 | 65.40  | 306.87 | 8.4 | 19.3 |
| 1613.0 | 42.4  | 46.0 | 144 | 9.6 | 1.39 | 13.33 | 110921 | 129.27 | 306.35 | 8.4 | 19.3 |
| 1614.0 | 5.6   | 46.0 | 105 | 9.6 | 1.96 | 13.51 | 112050 | 980.94 | 308.32 | 8.4 | 19.3 |



| DEPTH  | ROP   | WOB  | RPM | MW  | "d"c | HOURS | TURNS  | ICOST  | CCOST  | PP  | FG   |
|--------|-------|------|-----|-----|------|-------|--------|--------|--------|-----|------|
| 1615.0 | 10.4  | 46.0 | 139 | 9.6 | 1.85 | 13.61 | 112850 | 526.21 | 308.95 | 8.4 | 19.3 |
| 1616.0 | 3.6   | 46.0 | 109 | 9.6 | 2.12 | 13.89 | 114673 | 1533   | 312    | 8.4 | 19.3 |
| 1617.0 | 5.1   | 43.0 | 100 | 9.6 | 1.94 | 14.09 | 115858 | 1081   | 315    | 8.4 | 19.3 |
| 1618.0 | 4.0   | 43.0 | 100 | 9.6 | 2.01 | 14.34 | 117357 | 1367   | 318    | 8.4 | 19.3 |
| 1619.0 | 3.3   | 43.0 | 102 | 9.6 | 2.09 | 14.64 | 119222 | 1668   | 322    | 8.4 | 19.3 |
| 1620.0 | 120.0 | 43.0 | 102 | 9.6 | 0.90 | 14.65 | 119273 | 45.63  | 320.84 | 8.4 | 19.3 |
| 1621.0 | 23.4  | 43.0 | 102 | 9.6 | 1.44 | 14.69 | 119535 | 234.21 | 320.60 | 8.4 | 19.3 |
| 1622.0 | 23.4  | 43.0 | 102 | 9.6 | 1.44 | 14.74 | 119796 | 234.21 | 320.35 | 8.4 | 19.3 |
| 1623.0 | 31.3  | 43.0 | 102 | 9.6 | 1.34 | 14.77 | 119992 | 174.90 | 319.94 | 8.4 | 19.3 |
| 1624.0 | 3.0   | 43.0 | 102 | 9.6 | 2.12 | 15.10 | 122032 | 1825   | 324    | 8.4 | 19.3 |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 5       | IADC CODE   | 517    | INTERVAL  | 1624.0- 1626.0 |
| HTC J22     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 6788.00 | TRIP TIME   | 5.4    | BIT RUN   | 2.0            |
| TOTAL HOURS | 1.66    | TOTAL TURNS | 6146   | CONDITION | T8 B2 G0.125   |

| DEPTH  | ROP | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST | CCOST | PP  | FG   |
|--------|-----|------|-----|-----|------|-------|-------|-------|-------|-----|------|
| 1625.0 | 2.0 | 4.0  | 64  | 9.6 | 1.20 | 0.50  | 1933  | 2755  | 39108 | 8.4 | 19.3 |
| 1626.0 | 0.9 | 26.1 | 61  | 9.7 | 2.01 | 1.66  | 6146  | 6354  | 22731 | 8.4 | 19.3 |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 6       | TADC CODE   | 316    | INTERVAL  | 1626.0- 1663.0 |
| HTC J7      |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 1761.00 | TRIP TIME   | 5.5    | BIT RUN   | 37.0           |
| TOTAL HOURS | 3.99    | TOTAL TURNS | 26591  | CONDITION | T5 B2 G0.375   |

| DEPTH  | ROP   | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST | CCOST | PP  | FG   |
|--------|-------|------|-----|-----|------|-------|-------|-------|-------|-----|------|
| 1627.0 | 15.1  | 30.0 | 88  | 9.6 | 1.38 | 0.07  | 348   | 363   | 32236 | 8.4 | 19.3 |
| 1628.0 | 27.3  | 30.0 | 87  | 9.6 | 1.20 | 0.10  | 539   | 201   | 16218 | 8.4 | 19.3 |
| 1629.0 | 3.9   | 28.5 | 105 | 9.6 | 1.80 | 0.36  | 2137  | 1389  | 11275 | 8.4 | 19.3 |
| 1630.0 | 6.1   | 31.7 | 103 | 9.6 | 1.72 | 0.52  | 3158  | 900   | 8681  | 8.4 | 19.3 |
| 1631.0 | 6.4   | 33.2 | 98  | 9.6 | 1.72 | 0.68  | 4080  | 859   | 7117  | 8.4 | 19.3 |
| 1632.0 | 9.3   | 40.7 | 110 | 9.6 | 1.74 | 0.79  | 4790  | 589   | 6029  | 8.4 | 19.3 |
| 1633.0 | 13.4  | 42.7 | 110 | 9.6 | 1.65 | 0.86  | 5283  | 409   | 5226  | 8.4 | 19.3 |
| 1634.0 | 14.0  | 43.1 | 110 | 9.6 | 1.63 | 0.93  | 5754  | 391   | 4622  | 8.4 | 19.3 |
| 1635.0 | 6.9   | 21.0 | 110 | 9.6 | 1.52 | 1.08  | 6711  | 793   | 4196  | 8.4 | 19.3 |
| 1636.0 | 13.5  | 12.9 | 110 | 9.6 | 1.19 | 1.15  | 7200  | 406   | 3817  | 8.4 | 19.3 |
| 1637.0 | 12.5  | 23.7 | 110 | 9.6 | 1.41 | 1.23  | 7728  | 438   | 3510  | 8.4 | 19.3 |
| 1638.0 | 3.1   | 9.8  | 110 | 9.6 | 1.45 | 1.55  | 9851  | 1761  | 3364  | 8.4 | 19.3 |
| 1639.0 | 4.2   | 39.1 | 110 | 9.6 | 1.97 | 1.79  | 11422 | 1304  | 3206  | 8.4 | 19.3 |
| 1640.0 | 6.8   | 31.7 | 110 | 9.6 | 1.71 | 1.94  | 12393 | 805   | 3034  | 8.4 | 19.3 |
| 1641.0 | 16.5  | 13.0 | 110 | 9.6 | 1.15 | 2.00  | 12792 | 332   | 2854  | 8.4 | 19.3 |
| 1642.0 | 8.5   | 32.6 | 110 | 9.6 | 1.65 | 2.12  | 13566 | 642   | 2716  | 8.4 | 19.3 |
| 1643.0 | 11.9  | 44.1 | 110 | 9.6 | 1.70 | 2.20  | 14121 | 460   | 2583  | 8.4 | 19.3 |
| 1644.0 | 12.9  | 41.7 | 110 | 9.6 | 1.64 | 2.28  | 14632 | 424   | 2463  | 8.4 | 19.3 |
| 1645.0 | 10.2  | 36.3 | 110 | 9.6 | 1.65 | 2.37  | 15279 | 537   | 2362  | 8.4 | 19.3 |
| 1646.0 | 3.5   | 43.1 | 110 | 9.6 | 2.09 | 2.66  | 17165 | 1564  | 2322  | 8.4 | 19.3 |
| 1647.0 | 4.4   | 40.4 | 110 | 9.6 | 1.98 | 2.89  | 18665 | 1244  | 2271  | 8.4 | 19.3 |
| 1648.0 | 7.8   | 41.2 | 110 | 9.6 | 1.80 | 3.02  | 19511 | 702   | 2199  | 8.4 | 19.3 |
| 1649.0 | 22.9  | 41.5 | 110 | 9.6 | 1.46 | 3.06  | 19799 | 239   | 2114  | 8.4 | 19.3 |
| 1650.0 | 22.1  | 42.4 | 110 | 9.6 | 1.48 | 3.10  | 20098 | 248   | 2036  | 8.4 | 19.4 |
| 1651.0 | 23.7  | 41.2 | 110 | 9.6 | 1.44 | 3.15  | 20377 | 231   | 1964  | 8.4 | 19.4 |
| 1652.0 | 22.1  | 40.4 | 110 | 9.6 | 1.46 | 3.19  | 20675 | 248   | 1898  | 8.4 | 19.4 |
| 1653.0 | 56.2  | 38.8 | 110 | 9.6 | 1.14 | 3.21  | 20793 | 97    | 1831  | 8.4 | 19.4 |
| 1654.0 | 15.9  | 27.6 | 110 | 9.6 | 1.40 | 3.27  | 21208 | 344   | 1778  | 8.4 | 19.4 |
| 1655.0 | 11.8  | 35.5 | 110 | 9.6 | 1.59 | 3.36  | 21767 | 464   | 1733  | 8.4 | 19.4 |
| 1656.0 | 12.0  | 37.2 | 110 | 9.6 | 1.61 | 3.44  | 22317 | 456   | 1690  | 8.4 | 19.4 |
| 1657.0 | 9.4   | 37.0 | 110 | 9.6 | 1.68 | 3.55  | 23019 | 582   | 1655  | 8.4 | 19.4 |
| 1658.0 | 12.5  | 15.6 | 110 | 9.6 | 1.27 | 3.63  | 23547 | 438   | 1617  | 8.4 | 19.4 |
| 1659.0 | 56.0  | 9.8  | 138 | 9.6 | 0.85 | 3.65  | 23695 | 98    | 1571  | 8.4 | 19.4 |
| 1660.0 | 27.7  | 18.4 | 141 | 9.6 | 1.18 | 3.68  | 24000 | 198   | 1530  | 8.4 | 19.4 |
| 1661.0 | 102.9 | 32.1 | 142 | 9.6 | 0.97 | 3.69  | 24083 | 53    | 1488  | 8.4 | 19.4 |
| 1662.0 | 9.1   | 7.5  | 140 | 9.6 | 1.19 | 3.80  | 25006 | 602   | 1463  | 8.4 | 19.4 |
| 1663.0 | 5.3   | 5.1  | 140 | 9.6 | 1.21 | 3.99  | 26591 | 1033  | 1452  | 8.4 | 19.4 |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 7       | IADC CODE   | 517    | INTERVAL  | 1663.0- 2058.0 |
| HTC J22     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 6788.00 | TRIP TIME   | 6.4    | BIT RUN   | 395.0          |
| TOTAL HOURS | 46.42   | TOTAL TURNS | 174195 | CONDITION | T4 B3 G0.125   |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST | CCOST | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|-------|-------|-----|------|
| 1664.0 | 33.6 | 5.3  | 76  | 9.6 | 0.74 | 0.03  | 136   | 163   | 41991 | 8.4 | 19.4 |
| 1665.0 | 36.0 | 15.2 | 69  | 9.6 | 0.88 | 0.06  | 251   | 152   | 21072 | 8.4 | 19.4 |
| 1666.0 | 26.5 | 22.3 | 55  | 9.6 | 0.99 | 0.10  | 375   | 207   | 14117 | 8.4 | 19.4 |
| 1667.0 | 19.4 | 23.7 | 48  | 9.6 | 1.06 | 0.15  | 525   | 283   | 10658 | 8.4 | 19.4 |
| 1668.0 | 26.1 | 24.5 | 56  | 9.6 | 1.02 | 0.19  | 654   | 210   | 8569  | 8.4 | 19.4 |
| 1669.0 | 33.6 | 23.6 | 58  | 9.6 | 0.96 | 0.22  | 758   | 163   | 7168  | 8.4 | 19.4 |
| 1670.0 | 42.4 | 24.9 | 49  | 9.6 | 0.86 | 0.24  | 827   | 129   | 6162  | 8.4 | 19.4 |
| 1671.0 | 38.3 | 26.6 | 47  | 9.6 | 0.89 | 0.26  | 902   | 143   | 5410  | 8.4 | 19.4 |
| 1672.0 | 19.7 | 24.9 | 43  | 9.6 | 1.03 | 0.32  | 1032  | 278   | 4840  | 8.4 | 19.4 |
| 1673.0 | 11.0 | 24.3 | 69  | 9.6 | 1.32 | 0.41  | 1408  | 496   | 4405  | 8.4 | 19.4 |
| 1674.0 | 6.8  | 26.8 | 66  | 9.6 | 1.48 | 0.55  | 1989  | 805   | 4078  | 8.4 | 19.4 |
| 1675.0 | 16.4 | 27.3 | 45  | 9.6 | 1.13 | 0.61  | 2154  | 335   | 3766  | 8.4 | 19.4 |
| 1676.0 | 23.8 | 26.1 | 53  | 9.6 | 1.05 | 0.66  | 2288  | 230   | 3494  | 8.4 | 19.4 |
| 1677.0 | 26.1 | 24.0 | 53  | 9.6 | 1.01 | 0.69  | 2410  | 210   | 3259  | 8.4 | 19.4 |
| 1678.0 | 15.6 | 21.1 | 55  | 9.6 | 1.12 | 0.76  | 2620  | 351   | 3065  | 8.4 | 19.4 |
| 1679.0 | 13.9 | 15.1 | 55  | 9.6 | 1.06 | 0.83  | 2857  | 394   | 2898  | 8.4 | 19.4 |
| 1680.0 | 19.4 | 17.4 | 56  | 9.6 | 1.01 | 0.88  | 3029  | 283   | 2745  | 8.4 | 19.4 |
| 1681.0 | 14.6 | 16.5 | 53  | 9.6 | 1.06 | 0.95  | 3248  | 374   | 2613  | 8.4 | 19.4 |
| 1682.0 | 20.6 | 17.4 | 61  | 9.6 | 1.02 | 1.00  | 3426  | 266   | 2489  | 8.4 | 19.4 |
| 1683.0 | 29.8 | 25.3 | 59  | 9.6 | 1.01 | 1.03  | 3544  | 184   | 2374  | 8.4 | 19.4 |
| 1684.0 | 29.5 | 25.7 | 50  | 9.6 | 0.97 | 1.07  | 3646  | 186   | 2270  | 8.4 | 19.4 |
| 1685.0 | 27.7 | 27.5 | 49  | 9.6 | 1.00 | 1.10  | 3751  | 198   | 2176  | 8.4 | 19.4 |
| 1686.0 | 22.0 | 25.4 | 54  | 9.6 | 1.07 | 1.15  | 3897  | 249   | 2092  | 8.4 | 19.4 |
| 1687.0 | 28.6 | 24.5 | 56  | 9.6 | 1.00 | 1.18  | 4015  | 192   | 2013  | 8.4 | 19.4 |
| 1688.0 | 26.9 | 23.4 | 60  | 9.6 | 1.02 | 1.22  | 4149  | 204   | 1940  | 8.4 | 19.4 |
| 1689.0 | 28.1 | 25.1 | 58  | 9.6 | 1.02 | 1.26  | 4273  | 195   | 1873  | 8.4 | 19.4 |
| 1690.0 | 25.7 | 25.4 | 60  | 9.6 | 1.06 | 1.30  | 4413  | 213   | 1812  | 8.4 | 19.4 |
| 1691.0 | 5.8  | 26.0 | 67  | 9.6 | 1.52 | 1.47  | 5107  | 951   | 1781  | 8.4 | 19.4 |
| 1692.0 | 7.9  | 25.4 | 56  | 9.6 | 1.37 | 1.60  | 5531  | 695   | 1744  | 8.4 | 19.4 |
| 1693.0 | 16.0 | 24.7 | 46  | 9.6 | 1.11 | 1.66  | 5705  | 342   | 1697  | 8.4 | 19.4 |
| 1694.0 | 4.8  | 32.2 | 65  | 9.6 | 1.66 | 1.87  | 6518  | 1150  | 1679  | 8.4 | 19.4 |
| 1695.0 | 4.5  | 31.0 | 66  | 9.6 | 1.66 | 2.09  | 7387  | 1205  | 1664  | 8.4 | 19.4 |
| 1696.0 | 12.9 | 19.8 | 59  | 9.6 | 1.17 | 2.17  | 7661  | 426   | 1627  | 8.4 | 19.4 |
| 1697.0 | 8.7  | 29.1 | 57  | 9.6 | 1.40 | 2.28  | 8050  | 627   | 1597  | 8.4 | 19.4 |
| 1698.0 | 8.2  | 29.2 | 54  | 9.6 | 1.40 | 2.40  | 8445  | 668   | 1571  | 8.4 | 19.4 |
| 1699.0 | 21.4 | 26.5 | 41  | 9.6 | 1.01 | 2.45  | 8560  | 256   | 1534  | 8.4 | 19.4 |
| 1700.0 | 18.5 | 26.6 | 46  | 9.6 | 1.09 | 2.50  | 8709  | 297   | 1501  | 8.4 | 19.4 |
| 1701.0 | 17.1 | 26.5 | 50  | 9.6 | 1.14 | 2.56  | 8885  | 319   | 1470  | 8.4 | 19.4 |
| 1702.0 | 16.5 | 28.5 | 63  | 9.6 | 1.24 | 2.62  | 9114  | 332   | 1441  | 8.4 | 19.4 |
| 1703.0 | 22.9 | 30.8 | 59  | 9.6 | 1.15 | 2.67  | 9269  | 239   | 1411  | 8.4 | 19.4 |
| 1704.0 | 26.7 | 27.5 | 53  | 9.6 | 1.03 | 2.70  | 9387  | 205   | 1381  | 8.4 | 19.4 |
| 1705.0 | 22.0 | 27.1 | 56  | 9.6 | 1.10 | 2.75  | 9541  | 249   | 1354  | 8.4 | 19.4 |
| 1706.0 | 2.6  | 30.0 | 66  | 9.6 | 1.82 | 3.14  | 11085 | 2120  | 1372  | 8.4 | 19.5 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST  | CCOST  | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|--------|--------|-----|------|
| 1707.0 | 7.6  | 33.2 | 54  | 9.6 | 1.48 | 3.27  | 11512 | 724    | 1357   | 8.4 | 19.5 |
| 1708.0 | 15.3 | 31.5 | 56  | 9.6 | 1.26 | 3.33  | 11734 | 359    | 1335   | 8.4 | 19.5 |
| 1709.0 | 7.1  | 36.5 | 57  | 9.6 | 1.56 | 3.47  | 12215 | 770    | 1323   | 8.4 | 19.5 |
| 1710.0 | 5.1  | 38.4 | 54  | 9.6 | 1.67 | 3.67  | 12843 | 1071   | 1317   | 8.4 | 19.5 |
| 1711.0 | 12.1 | 38.4 | 48  | 9.6 | 1.36 | 3.75  | 13084 | 453    | 1299   | 8.4 | 19.5 |
| 1712.0 | 9.3  | 36.7 | 56  | 9.6 | 1.47 | 3.86  | 13444 | 590    | 1285   | 8.4 | 19.5 |
| 1713.0 | 15.3 | 35.8 | 53  | 9.6 | 1.29 | 3.93  | 13655 | 359    | 1266   | 8.4 | 19.5 |
| 1714.0 | 13.8 | 39.3 | 50  | 9.6 | 1.34 | 4.00  | 13870 | 395    | 1249   | 8.4 | 19.5 |
| 1715.0 | 17.6 | 33.6 | 46  | 9.6 | 1.18 | 4.05  | 14025 | 310    | 1231   | 8.4 | 19.5 |
| 1716.0 | 12.6 | 35.8 | 29  | 9.6 | 1.16 | 4.13  | 14163 | 435    | 1216   | 8.4 | 19.5 |
| 1717.0 | 37.5 | 35.0 | 65  | 9.6 | 1.07 | 4.16  | 14266 | 146    | 1196   | 8.4 | 19.5 |
| 1718.0 | 40.0 | 34.3 | 87  | 9.6 | 1.13 | 4.19  | 14396 | 137    | 1177   | 8.4 | 19.5 |
| 1719.0 | 43.9 | 33.2 | 80  | 9.6 | 1.06 | 4.21  | 14505 | 125    | 1158   | 8.4 | 19.5 |
| 1720.0 | 48.6 | 31.9 | 78  | 9.6 | 1.02 | 4.23  | 14601 | 113    | 1140   | 8.4 | 19.5 |
| 1721.0 | 72.0 | 33.8 | 80  | 9.6 | 0.92 | 4.24  | 14667 | 76     | 1122   | 8.4 | 19.5 |
| 1722.0 | 66.7 | 33.2 | 89  | 9.6 | 0.97 | 4.26  | 14747 | 82     | 1104   | 8.4 | 19.5 |
| 1723.0 | 75.0 | 35.8 | 83  | 9.6 | 0.93 | 4.27  | 14813 | 73     | 1087   | 8.4 | 19.5 |
| 1724.0 | 27.7 | 28.8 | 69  | 9.6 | 1.11 | 4.31  | 14962 | 198    | 1072   | 8.4 | 19.5 |
| 1725.0 | 24.3 | 26.9 | 65  | 9.6 | 1.12 | 4.35  | 15124 | 225    | 1059   | 8.4 | 19.5 |
| 1726.0 | 24.7 | 26.0 | 68  | 9.6 | 1.11 | 4.39  | 15288 | 222    | 1045   | 8.4 | 19.5 |
| 1727.0 | 22.8 | 21.8 | 62  | 9.6 | 1.06 | 4.43  | 15452 | 240    | 1033   | 8.4 | 19.5 |
| 1728.0 | 58.1 | 23.8 | 73  | 9.6 | 0.87 | 4.45  | 15527 | 94     | 1018   | 8.4 | 19.5 |
| 1729.0 | 36.0 | 20.3 | 74  | 9.6 | 0.97 | 4.48  | 15651 | 152    | 1005   | 8.4 | 19.5 |
| 1730.0 | 34.0 | 20.7 | 67  | 9.6 | 0.96 | 4.51  | 15770 | 161.21 | 992.64 | 8.4 | 19.5 |
| 1731.0 | 10.4 | 23.0 | 66  | 9.6 | 1.31 | 4.60  | 16150 | 526.21 | 985.78 | 8.4 | 19.5 |
| 1732.0 | 9.1  | 27.4 | 65  | 9.6 | 1.40 | 4.71  | 16576 | 602.25 | 980.22 | 8.4 | 19.5 |
| 1733.0 | 4.3  | 27.7 | 65  | 9.6 | 1.62 | 4.94  | 17474 | 1259   | 984    | 8.4 | 19.5 |
| 1734.0 | 3.8  | 35.9 | 70  | 9.6 | 1.81 | 5.20  | 18570 | 1424   | 990    | 8.4 | 19.5 |
| 1735.0 | 3.9  | 34.4 | 65  | 9.6 | 1.76 | 5.46  | 19586 | 1417   | 996    | 8.4 | 19.5 |
| 1736.0 | 3.9  | 34.1 | 66  | 9.6 | 1.75 | 5.72  | 20589 | 1396   | 1002   | 8.4 | 19.5 |
| 1737.0 | 4.9  | 32.4 | 65  | 9.6 | 1.66 | 5.92  | 21394 | 1128   | 1004   | 8.4 | 19.5 |
| 1738.0 | 5.7  | 32.0 | 65  | 9.6 | 1.61 | 6.10  | 22079 | 967    | 1003   | 8.4 | 19.5 |
| 1739.0 | 7.5  | 33.0 | 60  | 9.6 | 1.51 | 6.23  | 22553 | 726.96 | 999.40 | 8.4 | 19.5 |
| 1740.0 | 12.2 | 33.8 | 51  | 9.6 | 1.32 | 6.31  | 22802 | 447.12 | 992.22 | 8.4 | 19.5 |
| 1741.0 | 18.4 | 32.7 | 56  | 9.6 | 1.22 | 6.37  | 22985 | 298.08 | 983.33 | 8.4 | 19.5 |
| 1742.0 | 32.7 | 31.2 | 58  | 9.6 | 1.04 | 6.40  | 23091 | 167.29 | 973.00 | 8.4 | 19.5 |
| 1743.0 | 34.0 | 34.8 | 62  | 9.6 | 1.08 | 6.43  | 23200 | 161.21 | 962.85 | 8.4 | 19.5 |
| 1744.0 | 22.8 | 34.7 | 59  | 9.6 | 1.19 | 6.47  | 23355 | 240.29 | 953.93 | 8.4 | 19.5 |
| 1745.0 | 14.9 | 20.0 | 61  | 9.6 | 1.14 | 6.54  | 23601 | 368.04 | 946.78 | 8.4 | 19.5 |
| 1746.0 | 20.5 | 16.2 | 44  | 9.6 | 0.93 | 6.59  | 23730 | 267.67 | 938.60 | 8.4 | 19.5 |
| 1747.0 | 78.3 | 17.5 | 58  | 9.6 | 0.67 | 6.60  | 23775 | 69.96  | 928.26 | 8.4 | 19.5 |
| 1748.0 | 17.0 | 23.1 | 66  | 9.6 | 1.17 | 6.66  | 24009 | 322.42 | 921.13 | 8.4 | 19.5 |
| 1749.0 | 45.0 | 24.7 | 71  | 9.6 | 0.94 | 6.68  | 24104 | 121.67 | 911.84 | 8.4 | 19.5 |
| 1750.0 | 36.7 | 26.1 | 66  | 9.6 | 0.99 | 6.71  | 24212 | 149.04 | 903.07 | 8.4 | 19.5 |
| 1751.0 | 37.5 | 27.6 | 62  | 9.6 | 0.98 | 6.74  | 24311 | 146.00 | 894.47 | 8.4 | 19.5 |
| 1752.0 | 24.7 | 25.5 | 61  | 9.6 | 1.07 | 6.78  | 24459 | 222.04 | 886.91 | 8.4 | 19.5 |
| 1753.0 | 43.9 | 32.2 | 49  | 9.6 | 0.91 | 6.80  | 24526 | 124.71 | 878.44 | 8.4 | 19.5 |
| 1754.0 | 64.3 | 28.0 | 63  | 9.6 | 0.84 | 6.82  | 24585 | 85.17  | 869.72 | 8.4 | 19.5 |
| 1755.0 | 62.1 | 23.2 | 70  | 9.6 | 0.83 | 6.83  | 24653 | 88.21  | 861.23 | 8.4 | 19.5 |
| 1756.0 | 78.3 | 20.5 | 67  | 9.6 | 0.73 | 6.84  | 24704 | 69.96  | 852.72 | 8.4 | 19.5 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST  | CCOST  | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|--------|--------|-----|------|
| 1757.0 | 78.3 | 19.1 | 63  | 9.6 | 0.70 | 6.86  | 24752 | 69.96  | 844.39 | 8.4 | 19.5 |
| 1758.0 | 54.5 | 24.4 | 62  | 9.6 | 0.85 | 6.88  | 24820 | 100.38 | 836.56 | 8.4 | 19.5 |
| 1759.0 | 18.3 | 25.2 | 58  | 9.6 | 1.15 | 6.93  | 25012 | 299.60 | 830.97 | 8.4 | 19.5 |
| 1760.0 | 8.3  | 27.7 | 60  | 9.6 | 1.41 | 7.05  | 25447 | 663.08 | 829.24 | 8.4 | 19.5 |
| 1761.0 | 9.4  | 32.7 | 58  | 9.6 | 1.43 | 7.16  | 25817 | 584.00 | 826.74 | 8.4 | 19.5 |
| 1762.0 | 4.1  | 31.6 | 66  | 9.6 | 1.71 | 7.40  | 26791 | 1344   | 832    | 8.4 | 19.5 |
| 1763.0 | 8.1  | 34.2 | 62  | 9.6 | 1.52 | 7.53  | 27251 | 675.25 | 830.40 | 8.4 | 19.5 |
| 1764.0 | 9.0  | 32.0 | 61  | 9.6 | 1.45 | 7.64  | 27656 | 605.29 | 826.17 | 8.4 | 19.6 |
| 1765.0 | 9.2  | 33.1 | 62  | 9.6 | 1.46 | 7.75  | 28063 | 596.17 | 825.89 | 8.4 | 19.6 |
| 1766.0 | 50.0 | 31.8 | 46  | 9.6 | 0.85 | 7.77  | 28118 | 109.50 | 818.94 | 8.4 | 19.6 |
| 1767.0 | 40.0 | 28.4 | 52  | 9.6 | 0.92 | 7.79  | 28196 | 136.88 | 812.38 | 8.4 | 19.6 |
| 1768.0 | 27.7 | 34.1 | 50  | 9.6 | 1.07 | 7.83  | 28304 | 197.71 | 806.53 | 8.4 | 19.6 |
| 1769.0 | 20.0 | 33.5 | 50  | 9.6 | 1.17 | 7.88  | 28455 | 273.75 | 801.50 | 8.4 | 19.6 |
| 1770.0 | 22.4 | 31.2 | 52  | 9.6 | 1.12 | 7.92  | 28595 | 244.85 | 796.30 | 8.4 | 19.6 |
| 1771.0 | 28.6 | 30.2 | 56  | 9.6 | 1.06 | 7.96  | 28712 | 191.63 | 790.70 | 8.4 | 19.6 |
| 1772.0 | 28.1 | 32.3 | 49  | 9.6 | 1.04 | 7.99  | 28816 | 194.67 | 785.23 | 8.4 | 19.6 |
| 1773.0 | 8.7  | 33.5 | 57  | 9.6 | 1.46 | 8.11  | 29209 | 626.58 | 783.79 | 8.4 | 19.6 |
| 1774.0 | 15.1 | 32.7 | 52  | 9.6 | 1.25 | 8.17  | 29414 | 363.48 | 780.00 | 8.4 | 19.6 |
| 1775.0 | 15.9 | 27.1 | 38  | 9.6 | 1.08 | 8.24  | 29557 | 345.23 | 776.12 | 8.4 | 19.6 |
| 1776.0 | 19.5 | 23.1 | 45  | 9.6 | 1.03 | 8.29  | 29696 | 281.35 | 771.74 | 8.4 | 19.6 |
| 1777.0 | 35.0 | 22.7 | 50  | 9.6 | 0.89 | 8.32  | 29782 | 156.65 | 766.35 | 8.4 | 19.6 |
| 1778.0 | 37.9 | 16.1 | 56  | 9.6 | 0.83 | 8.34  | 29870 | 144.48 | 760.94 | 8.4 | 19.6 |
| 1779.0 | 28.8 | 14.1 | 61  | 9.6 | 0.89 | 8.38  | 29996 | 190.10 | 756.02 | 8.4 | 19.6 |
| 1780.0 | 62.1 | 19.2 | 67  | 9.6 | 0.78 | 8.39  | 30061 | 88.21  | 750.31 | 8.4 | 19.6 |
| 1781.0 | 81.8 | 22.1 | 65  | 9.6 | 0.73 | 8.41  | 30108 | 66.92  | 744.52 | 8.4 | 19.6 |
| 1782.0 | 18.8 | 26.8 | 64  | 9.6 | 1.18 | 8.46  | 30312 | 292.00 | 740.72 | 8.4 | 19.6 |
| 1783.0 | 19.5 | 26.3 | 74  | 9.6 | 1.21 | 8.51  | 30541 | 281.35 | 736.89 | 8.4 | 19.6 |
| 1784.0 | 35.3 | 24.9 | 70  | 9.6 | 1.01 | 8.54  | 30660 | 155.13 | 732.08 | 8.4 | 19.6 |
| 1785.0 | 29.3 | 24.2 | 76  | 9.6 | 1.08 | 8.57  | 30816 | 187.06 | 727.61 | 8.4 | 19.6 |
| 1786.0 | 44.4 | 23.9 | 79  | 9.6 | 0.97 | 8.60  | 30923 | 123.19 | 722.70 | 8.4 | 19.6 |
| 1787.0 | 66.7 | 21.2 | 84  | 9.6 | 0.84 | 8.61  | 30999 | 82.13  | 717.53 | 8.4 | 19.6 |
| 1788.0 | 36.7 | 23.5 | 74  | 9.6 | 0.99 | 8.64  | 31119 | 149.04 | 712.98 | 8.4 | 19.6 |
| 1789.0 | 28.3 | 22.1 | 70  | 9.6 | 1.03 | 8.67  | 31266 | 193.15 | 708.86 | 8.4 | 19.6 |
| 1790.0 | 59.0 | 22.4 | 69  | 9.6 | 0.84 | 8.69  | 31337 | 92.77  | 704.01 | 8.4 | 19.6 |
| 1791.0 | 26.1 | 15.7 | 72  | 9.6 | 0.98 | 8.73  | 31502 | 209.88 | 700.15 | 8.4 | 19.6 |
| 1792.0 | 23.5 | 8.9  | 82  | 9.6 | 0.91 | 8.77  | 31711 | 232.69 | 696.52 | 8.4 | 19.6 |
| 1793.0 | 21.6 | 5.5  | 77  | 9.6 | 0.83 | 8.82  | 31924 | 253.98 | 693.12 | 8.4 | 19.6 |
| 1794.0 | 26.7 | 6.5  | 79  | 9.6 | 0.82 | 8.86  | 32103 | 205.31 | 689.40 | 8.4 | 19.6 |
| 1795.0 | 36.0 | 10.8 | 71  | 9.6 | 0.82 | 8.88  | 32221 | 152.08 | 685.33 | 8.4 | 19.6 |
| 1796.0 | 39.6 | 14.4 | 78  | 9.6 | 0.88 | 8.91  | 32339 | 138.40 | 681.21 | 8.4 | 19.6 |
| 1797.0 | 70.6 | 18.5 | 80  | 9.6 | 0.79 | 8.92  | 32408 | 77.56  | 676.71 | 8.4 | 19.6 |
| 1798.0 | 23.2 | 13.6 | 82  | 9.6 | 1.01 | 8.97  | 32619 | 235.73 | 673.44 | 8.4 | 19.6 |
| 1799.0 | 64.3 | 16.2 | 95  | 9.6 | 0.83 | 8.98  | 32708 | 85.17  | 669.12 | 8.4 | 19.6 |
| 1800.0 | 39.5 | 6.8  | 74  | 9.6 | 0.73 | 9.01  | 32820 | 138.56 | 665.24 | 8.4 | 19.6 |
| 1801.0 | 78.3 | 8.2  | 72  | 9.6 | 0.61 | 9.02  | 32876 | 69.96  | 660.93 | 8.4 | 19.6 |
| 1802.0 | 42.9 | 14.7 | 85  | 9.6 | 0.88 | 9.04  | 32994 | 127.75 | 657.09 | 8.4 | 19.6 |
| 1803.0 | 10.7 | 18.2 | 83  | 9.6 | 1.28 | 9.14  | 33458 | 511.00 | 656.05 | 8.4 | 19.6 |
| 1804.0 | 22.5 | 8.1  | 72  | 9.6 | 0.88 | 9.18  | 33649 | 243.33 | 653.12 | 8.4 | 19.6 |
| 1805.0 | 18.9 | 14.4 | 95  | 9.6 | 1.10 | 9.23  | 33951 | 288.96 | 650.56 | 8.4 | 19.6 |
| 1806.0 | 18.5 | 10.3 | 73  | 9.6 | 0.97 | 9.29  | 34189 | 296.56 | 648.08 | 8.4 | 19.6 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST  | CCOST  | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|--------|--------|-----|------|
| 1807.0 | 32.4 | 8.3  | 73  | 9.6 | 0.80 | 9.32  | 34323 | 168.81 | 644.76 | 8.4 | 19.6 |
| 1808.0 | 30.3 | 9.4  | 91  | 9.6 | 0.89 | 9.35  | 34504 | 180.98 | 641.56 | 8.4 | 19.6 |
| 1809.0 | 36.4 | 9.7  | 77  | 9.6 | 0.82 | 9.38  | 34631 | 150.56 | 638.19 | 8.4 | 19.6 |
| 1810.0 | 17.5 | 9.9  | 83  | 9.6 | 1.00 | 9.44  | 34915 | 313.29 | 635.98 | 8.4 | 19.6 |
| 1811.0 | 4.3  | 20.1 | 69  | 9.6 | 1.51 | 9.67  | 35874 | 1274   | 640    | 8.4 | 19.6 |
| 1812.0 | 3.5  | 21.3 | 65  | 9.6 | 1.57 | 9.96  | 36986 | 1570   | 647    | 8.4 | 19.6 |
| 1813.0 | 5.1  | 25.6 | 75  | 9.6 | 1.58 | 10.15 | 37876 | 1081   | 649    | 8.4 | 19.6 |
| 1814.0 | 5.8  | 33.6 | 68  | 9.6 | 1.64 | 10.32 | 38576 | 941.40 | 651.37 | 8.4 | 19.6 |
| 1815.0 | 15.5 | 27.3 | 50  | 9.6 | 1.18 | 10.39 | 38771 | 354.35 | 649.41 | 8.4 | 19.6 |
| 1816.0 | 25.4 | 17.4 | 83  | 9.6 | 1.05 | 10.43 | 38968 | 215.96 | 646.58 | 8.4 | 19.6 |
| 1817.0 | 57.1 | 24.0 | 76  | 9.6 | 0.89 | 10.45 | 39048 | 95.81  | 643.00 | 8.4 | 19.6 |
| 1818.0 | 52.2 | 24.9 | 70  | 9.6 | 0.90 | 10.47 | 39128 | 104.94 | 639.53 | 8.4 | 19.6 |
| 1819.0 | 54.5 | 24.5 | 60  | 9.6 | 0.84 | 10.48 | 39194 | 100.38 | 636.07 | 8.4 | 19.6 |
| 1820.0 | 6.1  | 31.0 | 60  | 9.6 | 1.55 | 10.65 | 39786 | 900.33 | 637.76 | 8.4 | 19.6 |
| 1821.0 | 25.5 | 28.5 | 66  | 9.6 | 1.12 | 10.69 | 39940 | 214.44 | 635.08 | 8.4 | 19.6 |
| 1822.0 | 19.1 | 30.4 | 64  | 9.6 | 1.22 | 10.74 | 40141 | 285.92 | 632.88 | 8.4 | 19.6 |
| 1823.0 | 14.9 | 30.4 | 61  | 9.6 | 1.28 | 10.81 | 40385 | 366.52 | 631.22 | 8.4 | 19.6 |
| 1824.0 | 16.7 | 29.9 | 57  | 9.6 | 1.22 | 10.87 | 40589 | 328.50 | 629.34 | 8.4 | 19.7 |
| 1825.0 | 23.8 | 30.3 | 56  | 9.6 | 1.11 | 10.91 | 40731 | 229.65 | 626.87 | 8.4 | 19.7 |
| 1826.0 | 49.3 | 28.8 | 58  | 9.6 | 0.90 | 10.93 | 40801 | 111.02 | 623.71 | 8.4 | 19.7 |
| 1827.0 | 12.3 | 31.1 | 64  | 9.6 | 1.36 | 11.01 | 41112 | 444.08 | 622.61 | 8.4 | 19.7 |
| 1828.0 | 3.4  | 34.6 | 57  | 9.6 | 1.76 | 11.30 | 42102 | 1594   | 628    | 8.4 | 19.7 |
| 1829.0 | 2.2  | 35.3 | 56  | 9.6 | 1.90 | 11.76 | 43631 | 2505   | 640    | 8.4 | 19.7 |
| 1830.0 | 11.7 | 32.6 | 59  | 9.6 | 1.37 | 11.84 | 43935 | 468.42 | 638.77 | 8.4 | 19.7 |
| 1831.0 | 17.3 | 26.0 | 61  | 9.6 | 1.18 | 11.90 | 44146 | 316.33 | 636.85 | 8.4 | 19.7 |
| 1832.0 | 4.1  | 32.5 | 63  | 9.6 | 1.71 | 12.15 | 45074 | 1347   | 641    | 8.4 | 19.7 |
| 1833.0 | 1.9  | 31.0 | 65  | 9.6 | 1.92 | 12.68 | 47155 | 2912   | 654    | 8.4 | 19.7 |
| 1834.0 | 29.5 | 31.0 | 50  | 9.6 | 1.03 | 12.71 | 47257 | 185.54 | 651.68 | 8.4 | 19.7 |
| 1835.0 | 27.7 | 32.3 | 53  | 9.6 | 1.07 | 12.75 | 47372 | 197.71 | 649.04 | 8.4 | 19.7 |
| 1836.0 | 30.8 | 28.7 | 54  | 9.6 | 1.01 | 12.78 | 47478 | 177.94 | 646.32 | 8.4 | 19.7 |
| 1837.0 | 5.4  | 31.8 | 61  | 9.6 | 1.60 | 12.97 | 48154 | 1014   | 648    | 8.4 | 19.7 |
| 1838.0 | 31.6 | 24.4 | 67  | 9.6 | 1.02 | 13.00 | 48281 | 173.38 | 645.72 | 8.4 | 19.7 |
| 1839.0 | 17.0 | 30.6 | 67  | 9.6 | 1.27 | 13.06 | 48518 | 322.42 | 643.88 | 8.4 | 19.7 |
| 1840.0 | 7.5  | 31.3 | 63  | 9.6 | 1.50 | 13.19 | 49020 | 731.52 | 644.37 | 8.4 | 19.7 |
| 1841.0 | 25.5 | 14.1 | 88  | 9.6 | 1.01 | 13.23 | 49226 | 214.44 | 641.96 | 8.4 | 19.7 |
| 1842.0 | 8.4  | 13.8 | 74  | 9.6 | 1.23 | 13.35 | 49753 | 649.40 | 642.00 | 8.4 | 19.7 |
| 1843.0 | 10.4 | 21.5 | 73  | 9.6 | 1.31 | 13.45 | 50172 | 526.21 | 641.36 | 8.4 | 19.7 |
| 1844.0 | 22.9 | 25.5 | 84  | 9.6 | 1.19 | 13.49 | 50391 | 238.77 | 639.13 | 8.4 | 19.7 |
| 1845.0 | 15.4 | 21.8 | 62  | 9.6 | 1.16 | 13.55 | 50634 | 355.88 | 637.58 | 8.4 | 19.7 |
| 1846.0 | 20.2 | 21.4 | 94  | 9.6 | 1.20 | 13.60 | 50913 | 270.71 | 635.57 | 8.4 | 19.7 |
| 1847.0 | 2.3  | 34.5 | 65  | 9.6 | 1.92 | 14.03 | 52596 | 2357   | 645    | 8.4 | 19.7 |
| 1848.0 | 2.3  | 34.4 | 58  | 9.6 | 1.88 | 14.47 | 54109 | 2386   | 654    | 8.4 | 19.7 |
| 1849.0 | 4.3  | 33.9 | 61  | 9.6 | 1.70 | 14.70 | 54955 | 1262   | 658    | 8.4 | 19.7 |
| 1850.0 | 11.1 | 13.6 | 60  | 9.6 | 1.11 | 14.79 | 55279 | 492.75 | 656.73 | 8.4 | 19.7 |
| 1851.0 | 25.9 | 9.8  | 92  | 9.6 | 0.94 | 14.83 | 55493 | 211.40 | 654.36 | 8.4 | 19.7 |
| 1852.0 | 36.0 | 17.2 | 80  | 9.6 | 0.94 | 14.86 | 55626 | 152.08 | 651.70 | 8.4 | 19.7 |
| 1853.0 | 16.4 | 21.2 | 70  | 9.6 | 1.17 | 14.92 | 55880 | 333.06 | 650.02 | 8.4 | 19.7 |
| 1854.0 | 29.0 | 15.3 | 81  | 9.6 | 0.98 | 14.95 | 56049 | 188.58 | 647.61 | 8.4 | 19.7 |
| 1855.0 | 15.4 | 13.6 | 61  | 9.6 | 1.03 | 15.02 | 56288 | 355.88 | 646.09 | 8.4 | 19.7 |
| 1856.0 | 15.3 | 10.6 | 79  | 9.6 | 1.04 | 15.08 | 56598 | 358.92 | 644.60 | 8.4 | 19.7 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | URNS  | ICOST  | CCOST  | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|--------|--------|-----|------|
| 1857.0 | 19.5 | 15.9 | 92  | 9.6 | 1.12 | 15.13 | 56882 | 281.35 | 642.73 | 8.4 | 19.7 |
| 1858.0 | 3.8  | 10.3 | 76  | 9.6 | 1.34 | 15.40 | 58106 | 1460   | 647    | 8.4 | 19.7 |
| 1859.0 | 2.9  | 20.8 | 84  | 9.5 | 1.70 | 15.75 | 59844 | 1888   | 653    | 8.4 | 19.7 |
| 1860.0 | 2.6  | 22.3 | 87  | 9.5 | 1.77 | 16.13 | 61863 | 2106   | 661    | 8.4 | 19.7 |
| 1861.0 | 3.8  | 22.1 | 92  | 9.5 | 1.67 | 16.39 | 63309 | 1441   | 665    | 8.4 | 19.7 |
| 1862.0 | 3.2  | 25.0 | 75  | 9.5 | 1.72 | 16.71 | 64715 | 1711   | 670    | 8.4 | 19.7 |
| 1863.0 | 5.4  | 28.5 | 69  | 9.5 | 1.60 | 16.89 | 65483 | 1019   | 672    | 8.4 | 19.7 |
| 1864.0 | 3.3  | 30.9 | 64  | 9.5 | 1.77 | 17.19 | 66643 | 1646   | 676    | 8.4 | 19.7 |
| 1865.0 | 3.8  | 28.3 | 68  | 9.5 | 1.70 | 17.46 | 67711 | 1440   | 680    | 8.4 | 19.7 |
| 1866.0 | 3.2  | 36.1 | 62  | 9.5 | 1.85 | 17.77 | 68873 | 1717   | 685    | 8.4 | 19.7 |
| 1867.0 | 3.3  | 38.1 | 57  | 9.6 | 1.83 | 18.07 | 69917 | 1662   | 690    | 8.4 | 19.7 |
| 1868.0 | 2.8  | 39.4 | 55  | 9.6 | 1.88 | 18.43 | 71101 | 1975   | 696    | 8.4 | 19.7 |
| 1869.0 | 3.6  | 39.0 | 60  | 9.6 | 1.83 | 18.71 | 72106 | 1528   | 700    | 8.4 | 19.7 |
| 1870.0 | 2.9  | 37.6 | 59  | 9.6 | 1.87 | 19.06 | 73338 | 1918   | 706    | 8.4 | 19.7 |
| 1871.0 | 3.3  | 40.2 | 59  | 9.6 | 1.86 | 19.36 | 74403 | 1643   | 711    | 8.4 | 19.7 |
| 1872.0 | 3.1  | 39.1 | 73  | 9.6 | 1.93 | 19.68 | 75798 | 1749   | 716    | 8.4 | 19.7 |
| 1873.0 | 3.3  | 38.6 | 65  | 9.6 | 1.87 | 19.98 | 76976 | 1649   | 720    | 8.4 | 19.7 |
| 1874.0 | 3.9  | 36.2 | 74  | 9.6 | 1.83 | 20.24 | 78118 | 1405   | 723    | 8.4 | 19.7 |
| 1875.0 | 4.2  | 33.1 | 70  | 9.6 | 1.74 | 20.48 | 79124 | 1312   | 726    | 8.4 | 19.7 |
| 1876.0 | 10.3 | 45.0 | 76  | 9.6 | 1.64 | 20.58 | 79567 | 532.29 | 725.31 | 8.4 | 19.7 |
| 1877.0 | 60.0 | 43.3 | 56  | 9.6 | 0.94 | 20.59 | 79623 | 91.25  | 722.35 | 8.4 | 19.7 |
| 1878.0 | 80.0 | 32.6 | 61  | 9.6 | 0.80 | 20.61 | 79669 | 68.44  | 719.30 | 8.4 | 19.7 |
| 1879.0 | 52.2 | 31.0 | 69  | 9.6 | 0.95 | 20.63 | 79748 | 104.89 | 716.46 | 8.4 | 19.7 |
| 1880.0 | 56.2 | 25.6 | 88  | 9.6 | 0.95 | 20.64 | 79842 | 97.33  | 713.61 | 8.4 | 19.7 |
| 1881.0 | 23.4 | 24.7 | 95  | 9.6 | 1.21 | 20.69 | 80086 | 234.21 | 711.41 | 8.4 | 19.7 |
| 1882.0 | 22.2 | 33.8 | 81  | 9.6 | 1.28 | 20.73 | 80305 | 246.38 | 709.28 | 8.4 | 19.7 |
| 1883.0 | 20.2 | 39.3 | 77  | 9.6 | 1.36 | 20.78 | 80533 | 270.71 | 707.29 | 8.4 | 19.7 |
| 1884.0 | 23.2 | 38.1 | 83  | 9.6 | 1.33 | 20.82 | 80749 | 235.73 | 705.16 | 8.4 | 19.7 |
| 1885.0 | 20.3 | 41.8 | 83  | 9.6 | 1.41 | 20.87 | 80994 | 269.19 | 703.19 | 8.4 | 19.7 |
| 1886.0 | 28.1 | 45.4 | 81  | 9.6 | 1.33 | 20.91 | 81168 | 194.67 | 700.91 | 8.4 | 19.8 |
| 1887.0 | 25.0 | 39.9 | 76  | 9.6 | 1.29 | 20.95 | 81351 | 219.00 | 698.76 | 8.4 | 19.8 |
| 1888.0 | 30.0 | 39.6 | 84  | 9.6 | 1.26 | 20.98 | 81518 | 182.50 | 696.47 | 8.4 | 19.8 |
| 1889.0 | 24.3 | 39.0 | 88  | 9.6 | 1.34 | 21.02 | 81734 | 225.08 | 694.38 | 8.4 | 19.8 |
| 1890.0 | 29.5 | 39.0 | 86  | 9.6 | 1.27 | 21.06 | 81909 | 185.54 | 692.14 | 8.4 | 19.8 |
| 1891.0 | 8.3  | 46.4 | 82  | 9.6 | 1.75 | 21.18 | 82503 | 658.52 | 691.99 | 8.4 | 19.8 |
| 1892.0 | 25.9 | 46.3 | 78  | 9.6 | 1.35 | 21.22 | 82684 | 211.40 | 689.89 | 8.4 | 19.8 |
| 1893.0 | 23.7 | 46.0 | 77  | 9.6 | 1.37 | 21.26 | 82880 | 231.17 | 687.90 | 8.4 | 19.8 |
| 1894.0 | 34.0 | 41.4 | 79  | 9.6 | 1.22 | 21.29 | 83018 | 161.21 | 685.62 | 8.4 | 19.8 |
| 1895.0 | 14.4 | 43.0 | 78  | 9.6 | 1.51 | 21.36 | 83343 | 380.21 | 684.30 | 8.4 | 19.8 |
| 1896.0 | 9.4  | 44.4 | 78  | 9.6 | 1.67 | 21.46 | 83841 | 582.48 | 683.86 | 8.4 | 19.8 |
| 1897.0 | 4.9  | 44.4 | 79  | 9.6 | 1.89 | 21.67 | 84810 | 1115   | 686    | 8.4 | 19.8 |
| 1898.0 | 4.0  | 42.7 | 73  | 9.6 | 1.91 | 21.92 | 85913 | 1376   | 689    | 8.4 | 19.8 |
| 1899.0 | 4.5  | 40.4 | 56  | 9.6 | 1.75 | 22.14 | 86661 | 1209   | 691    | 8.4 | 19.8 |
| 1900.0 | 4.6  | 43.1 | 58  | 9.6 | 1.79 | 22.36 | 87423 | 1203   | 693    | 8.4 | 19.8 |
| 1901.0 | 3.0  | 42.7 | 43  | 9.6 | 1.83 | 22.70 | 88284 | 1849   | 698    | 8.4 | 19.8 |
| 1902.0 | 4.5  | 42.9 | 57  | 9.6 | 1.79 | 22.92 | 89044 | 1218   | 700    | 8.4 | 19.8 |
| 1903.0 | 4.0  | 44.0 | 49  | 9.6 | 1.79 | 23.17 | 89781 | 1366   | 703    | 8.4 | 19.8 |
| 1904.0 | 5.8  | 43.8 | 82  | 9.6 | 1.84 | 23.34 | 90624 | 941.40 | 703.81 | 8.4 | 19.8 |
| 1905.0 | 6.2  | 43.1 | 82  | 9.6 | 1.80 | 23.50 | 91412 | 877.52 | 704.53 | 8.4 | 19.8 |
| 1906.0 | 24.0 | 43.5 | 65  | 9.6 | 1.29 | 23.54 | 91574 | 228.13 | 702.57 | 8.4 | 19.8 |



| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS  | ICOST  | CCOST  | PP  | FG   |
|--------|------|------|-----|-----|------|-------|--------|--------|--------|-----|------|
| 1907.0 | 12.4 | 25.8 | 61  | 9.6 | 1.27 | 23.62 | 91870  | 441.04 | 701.50 | 8.4 | 19.8 |
| 1908.0 | 24.0 | 19.7 | 78  | 9.6 | 1.08 | 23.66 | 92065  | 228.13 | 699.56 | 8.4 | 19.8 |
| 1909.0 | 25.5 | 25.9 | 76  | 9.6 | 1.13 | 23.70 | 92243  | 214.44 | 697.59 | 8.4 | 19.8 |
| 1910.0 | 23.5 | 27.4 | 86  | 9.6 | 1.21 | 23.75 | 92462  | 232.69 | 695.71 | 8.4 | 19.8 |
| 1911.0 | 23.7 | 34.2 | 84  | 9.6 | 1.28 | 23.79 | 92674  | 231.17 | 693.84 | 8.4 | 19.8 |
| 1912.0 | 36.4 | 38.4 | 88  | 9.6 | 1.20 | 23.82 | 92819  | 150.56 | 691.65 | 8.4 | 19.8 |
| 1913.0 | 8.2  | 40.9 | 89  | 9.6 | 1.71 | 23.94 | 93470  | 670.69 | 691.57 | 8.4 | 19.8 |
| 1914.0 | 3.9  | 43.6 | 71  | 9.6 | 1.92 | 24.19 | 94566  | 1399   | 694    | 8.4 | 19.8 |
| 1915.0 | 2.8  | 38.0 | 57  | 9.6 | 1.87 | 24.55 | 95778  | 1930   | 699    | 8.4 | 19.8 |
| 1916.0 | 5.6  | 43.2 | 72  | 9.6 | 1.80 | 24.73 | 96550  | 983.98 | 700.42 | 8.4 | 19.8 |
| 1917.0 | 4.0  | 47.8 | 73  | 9.6 | 1.98 | 24.98 | 97647  | 1364   | 703    | 8.4 | 19.8 |
| 1918.0 | 5.4  | 47.3 | 74  | 9.6 | 1.87 | 25.16 | 98473  | 1013   | 704    | 8.4 | 19.8 |
| 1919.0 | 4.3  | 47.2 | 58  | 9.6 | 1.87 | 25.39 | 99285  | 1279   | 706    | 8.4 | 19.8 |
| 1920.0 | 3.2  | 47.5 | 37  | 9.6 | 1.82 | 25.71 | 99981  | 1719   | 710    | 8.4 | 19.8 |
| 1921.0 | 3.8  | 47.0 | 39  | 9.6 | 1.77 | 25.97 | 100595 | 1442   | 713    | 8.4 | 19.8 |
| 1922.0 | 5.4  | 46.8 | 42  | 9.6 | 1.68 | 26.16 | 101064 | 1022   | 714    | 8.4 | 19.8 |
| 1923.0 | 8.1  | 47.0 | 48  | 9.6 | 1.59 | 26.28 | 101420 | 678.29 | 714.32 | 8.4 | 19.8 |
| 1924.0 | 4.0  | 45.9 | 45  | 9.6 | 1.79 | 26.53 | 102099 | 1370   | 717    | 8.4 | 19.8 |
| 1925.0 | 3.9  | 44.8 | 40  | 9.6 | 1.74 | 26.79 | 102712 | 1389   | 719    | 8.4 | 19.8 |
| 1926.0 | 5.2  | 45.1 | 44  | 9.7 | 1.67 | 26.98 | 103218 | 1046   | 721    | 8.4 | 19.8 |
| 1927.0 | 5.3  | 46.7 | 47  | 9.7 | 1.70 | 27.17 | 103748 | 1031   | 722    | 8.4 | 19.8 |
| 1928.0 | 6.3  | 42.8 | 47  | 9.7 | 1.60 | 27.33 | 104202 | 874.48 | 722.39 | 8.4 | 19.8 |
| 1929.0 | 3.3  | 43.5 | 46  | 9.7 | 1.80 | 27.62 | 105025 | 1641   | 726    | 8.4 | 19.8 |
| 1930.0 | 3.3  | 45.2 | 43  | 9.7 | 1.81 | 27.93 | 105796 | 1650   | 729    | 8.4 | 19.8 |
| 1931.0 | 3.9  | 43.8 | 52  | 9.7 | 1.80 | 28.18 | 106597 | 1407   | 732    | 8.4 | 19.8 |
| 1932.0 | 3.7  | 41.3 | 53  | 9.7 | 1.79 | 28.46 | 107459 | 1492   | 735    | 8.4 | 19.8 |
| 1933.0 | 4.1  | 40.9 | 53  | 9.7 | 1.75 | 28.70 | 108222 | 1323   | 737    | 8.4 | 19.8 |
| 1934.0 | 4.9  | 40.2 | 59  | 9.7 | 1.72 | 28.90 | 108944 | 1115   | 738    | 8.4 | 19.8 |
| 1935.0 | 6.0  | 37.8 | 83  | 9.6 | 1.74 | 29.07 | 109766 | 907.94 | 738.86 | 8.4 | 19.8 |
| 1936.0 | 8.0  | 29.1 | 73  | 9.6 | 1.50 | 29.19 | 110312 | 682.85 | 738.65 | 8.4 | 19.8 |
| 1937.0 | 14.0 | 15.0 | 75  | 9.6 | 1.13 | 29.26 | 110632 | 390.85 | 737.38 | 8.4 | 19.8 |
| 1938.0 | 35.6 | 15.3 | 92  | 9.6 | 0.96 | 29.29 | 110788 | 153.60 | 735.26 | 8.4 | 19.8 |
| 1939.0 | 13.5 | 26.2 | 83  | 9.6 | 1.34 | 29.36 | 111155 | 404.54 | 734.06 | 8.4 | 19.8 |
| 1940.0 | 4.4  | 40.7 | 59  | 9.6 | 1.78 | 29.59 | 111953 | 1246   | 736    | 8.4 | 19.8 |
| 1941.0 | 3.1  | 42.2 | 54  | 9.6 | 1.88 | 29.91 | 112999 | 1764   | 740    | 8.4 | 19.8 |
| 1942.0 | 3.2  | 39.5 | 61  | 9.6 | 1.87 | 30.22 | 114129 | 1699   | 743    | 8.4 | 19.8 |
| 1943.0 | 3.5  | 41.1 | 63  | 9.6 | 1.88 | 30.51 | 115203 | 1566   | 746    | 8.4 | 19.8 |
| 1944.0 | 4.1  | 42.6 | 61  | 9.6 | 1.84 | 30.76 | 116100 | 1338   | 748    | 8.4 | 19.8 |
| 1945.0 | 25.7 | 33.1 | 54  | 9.6 | 1.11 | 30.79 | 116226 | 212.92 | 746.19 | 8.4 | 19.8 |
| 1946.0 | 4.7  | 42.2 | 63  | 9.6 | 1.80 | 31.01 | 117030 | 1159   | 748    | 8.4 | 19.8 |
| 1947.0 | 4.3  | 43.5 | 63  | 9.6 | 1.84 | 31.24 | 117906 | 1267   | 749    | 8.4 | 19.8 |
| 1948.0 | 4.7  | 44.9 | 64  | 9.6 | 1.84 | 31.45 | 118725 | 1176   | 751    | 8.4 | 19.8 |
| 1949.0 | 4.7  | 46.0 | 65  | 9.6 | 1.86 | 31.66 | 119557 | 1163   | 752    | 8.4 | 19.9 |
| 1950.0 | 7.1  | 45.3 | 54  | 9.6 | 1.65 | 31.81 | 120018 | 774.10 | 752.49 | 8.4 | 19.9 |
| 1951.0 | 23.1 | 42.8 | 46  | 9.6 | 1.18 | 31.85 | 120138 | 237.25 | 750.70 | 8.4 | 19.9 |
| 1952.0 | 29.5 | 36.6 | 51  | 9.5 | 1.09 | 31.88 | 120242 | 185.54 | 748.75 | 8.4 | 19.9 |
| 1953.0 | 25.9 | 35.0 | 58  | 9.5 | 1.16 | 31.92 | 120375 | 211.40 | 746.90 | 8.4 | 19.9 |
| 1954.0 | 27.1 | 40.4 | 54  | 9.5 | 1.17 | 31.96 | 120494 | 202.27 | 745.02 | 8.4 | 19.9 |
| 1955.0 | 40.9 | 36.8 | 61  | 9.5 | 1.05 | 31.98 | 120583 | 133.83 | 742.93 | 8.4 | 19.9 |
| 1956.0 | 38.7 | 35.1 | 60  | 9.5 | 1.04 | 32.01 | 120676 | 141.44 | 740.88 | 8.4 | 19.9 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS  | ICOST  | CCOST  | PP  | FG   |
|--------|------|------|-----|-----|------|-------|--------|--------|--------|-----|------|
| 1957.0 | 19.6 | 33.7 | 61  | 9.5 | 1.25 | 32.06 | 120864 | 279.83 | 739.31 | 8.4 | 19.9 |
| 1958.0 | 35.0 | 32.4 | 75  | 9.5 | 1.12 | 32.09 | 120992 | 156.65 | 737.34 | 8.4 | 19.9 |
| 1959.0 | 39.1 | 33.3 | 72  | 9.5 | 1.08 | 32.11 | 121102 | 139.92 | 735.32 | 8.4 | 19.9 |
| 1960.0 | 46.8 | 33.6 | 73  | 9.5 | 1.04 | 32.14 | 121196 | 117.10 | 733.24 | 8.4 | 19.9 |
| 1961.0 | 19.5 | 22.0 | 80  | 9.5 | 1.18 | 32.19 | 121442 | 281.35 | 731.72 | 8.4 | 19.9 |
| 1962.0 | 10.2 | 18.6 | 81  | 9.5 | 1.31 | 32.29 | 121920 | 536.85 | 731.07 | 8.4 | 19.9 |
| 1963.0 | 19.9 | 18.7 | 90  | 9.5 | 1.16 | 32.34 | 122191 | 275.27 | 729.55 | 8.4 | 19.9 |
| 1964.0 | 12.6 | 19.5 | 81  | 9.5 | 1.27 | 32.41 | 122579 | 434.96 | 728.57 | 8.4 | 19.9 |
| 1965.0 | 14.9 | 19.4 | 82  | 9.5 | 1.22 | 32.48 | 122908 | 368.04 | 727.38 | 8.4 | 19.9 |
| 1966.0 | 7.8  | 25.3 | 78  | 9.5 | 1.48 | 32.61 | 123508 | 699.58 | 727.28 | 8.4 | 19.9 |
| 1967.0 | 3.5  | 35.4 | 56  | 9.5 | 1.78 | 32.90 | 124481 | 1582   | 730    | 8.4 | 19.9 |
| 1968.0 | 4.1  | 41.9 | 54  | 9.5 | 1.81 | 33.15 | 125280 | 1351   | 732    | 8.4 | 19.9 |
| 1969.0 | 4.4  | 43.7 | 53  | 9.5 | 1.81 | 33.37 | 126012 | 1252   | 734    | 8.4 | 19.9 |
| 1970.0 | 3.8  | 43.3 | 54  | 9.5 | 1.85 | 33.64 | 126867 | 1452   | 736    | 8.4 | 19.9 |
| 1971.0 | 8.3  | 40.2 | 55  | 9.5 | 1.56 | 33.76 | 127260 | 657.00 | 735.91 | 8.4 | 19.9 |
| 1972.0 | 25.0 | 28.7 | 82  | 9.5 | 1.21 | 33.80 | 127457 | 219.00 | 734.24 | 8.4 | 19.9 |
| 1973.0 | 10.3 | 30.4 | 79  | 9.5 | 1.48 | 33.90 | 127913 | 529.25 | 733.58 | 8.4 | 19.9 |
| 1974.0 | 18.5 | 30.0 | 77  | 9.5 | 1.29 | 33.95 | 128163 | 296.56 | 732.17 | 8.4 | 19.9 |
| 1975.0 | 5.5  | 19.5 | 61  | 9.5 | 1.41 | 34.13 | 128822 | 990.06 | 733.00 | 8.4 | 19.9 |
| 1976.0 | 9.1  | 15.2 | 82  | 9.5 | 1.28 | 34.24 | 129361 | 602.25 | 732.58 | 8.4 | 19.9 |
| 1977.0 | 12.7 | 25.8 | 82  | 9.5 | 1.37 | 34.32 | 129749 | 431.92 | 731.62 | 8.4 | 19.9 |
| 1978.0 | 20.9 | 24.9 | 93  | 9.5 | 1.25 | 34.37 | 130016 | 261.58 | 730.13 | 8.4 | 19.9 |
| 1979.0 | 42.9 | 23.4 | 96  | 9.5 | 1.03 | 34.39 | 130149 | 127.75 | 728.22 | 8.4 | 19.9 |
| 1980.0 | 9.2  | 22.1 | 79  | 9.5 | 1.39 | 34.50 | 130660 | 593.13 | 727.80 | 8.4 | 19.9 |
| 1981.0 | 8.5  | 21.7 | 79  | 9.5 | 1.41 | 34.62 | 131221 | 643.31 | 727.53 | 8.4 | 19.9 |
| 1982.0 | 2.1  | 38.3 | 61  | 9.5 | 2.02 | 35.10 | 133001 | 2671   | 734    | 8.4 | 19.9 |
| 1983.0 | 5.7  | 33.4 | 65  | 9.5 | 1.64 | 35.28 | 133679 | 953.56 | 734.31 | 8.4 | 19.9 |
| 1984.0 | 4.3  | 29.4 | 68  | 9.5 | 1.68 | 35.51 | 134622 | 1274   | 736    | 8.4 | 19.9 |
| 1985.0 | 11.1 | 28.4 | 57  | 9.5 | 1.33 | 35.60 | 134928 | 491.23 | 735.23 | 8.4 | 19.9 |
| 1986.0 | 16.5 | 26.8 | 79  | 9.5 | 1.29 | 35.66 | 135214 | 331.54 | 733.98 | 8.4 | 19.9 |
| 1987.0 | 9.4  | 19.6 | 80  | 9.5 | 1.34 | 35.77 | 135719 | 579.44 | 733.51 | 8.4 | 19.9 |
| 1988.0 | 12.1 | 20.7 | 84  | 9.5 | 1.31 | 35.85 | 136133 | 451.69 | 732.64 | 8.4 | 19.9 |
| 1989.0 | 13.8 | 23.9 | 82  | 9.5 | 1.31 | 35.92 | 136488 | 396.94 | 731.61 | 8.4 | 19.9 |
| 1990.0 | 12.3 | 23.8 | 69  | 9.5 | 1.30 | 36.00 | 136825 | 444.08 | 730.73 | 8.4 | 19.9 |
| 1991.0 | 10.0 | 27.4 | 74  | 9.5 | 1.43 | 36.10 | 137270 | 547.50 | 730.17 | 8.4 | 19.9 |
| 1992.0 | 3.5  | 27.9 | 63  | 9.5 | 1.69 | 36.39 | 138337 | 1544   | 733    | 8.4 | 19.9 |
| 1993.0 | 3.2  | 35.1 | 40  | 9.5 | 1.70 | 36.70 | 139097 | 1737   | 736    | 8.4 | 19.9 |
| 1994.0 | 18.4 | 34.8 | 45  | 9.5 | 1.19 | 36.76 | 139245 | 298.08 | 734.36 | 8.4 | 19.9 |
| 1995.0 | 5.2  | 37.7 | 48  | 9.5 | 1.63 | 36.95 | 139791 | 1045   | 735    | 8.4 | 19.9 |
| 1996.0 | 2.7  | 42.7 | 47  | 9.5 | 1.92 | 37.32 | 140849 | 2050   | 739    | 8.4 | 19.9 |
| 1997.0 | 2.8  | 41.8 | 56  | 9.5 | 1.95 | 37.69 | 142078 | 1985   | 743    | 8.4 | 19.9 |
| 1998.0 | 2.6  | 41.7 | 52  | 9.5 | 1.94 | 38.07 | 143281 | 2093   | 747    | 8.4 | 19.9 |
| 1999.0 | 2.4  | 38.6 | 43  | 9.5 | 1.86 | 38.48 | 144337 | 2242   | 751    | 8.4 | 19.9 |
| 2000.0 | 5.6  | 40.0 | 53  | 9.5 | 1.67 | 38.66 | 144901 | 979.42 | 752.13 | 8.4 | 19.9 |
| 2001.0 | 7.4  | 36.3 | 70  | 9.5 | 1.63 | 38.79 | 145473 | 743.69 | 752.11 | 8.4 | 19.9 |
| 2002.0 | 12.9 | 42.3 | 47  | 9.5 | 1.39 | 38.87 | 145693 | 425.83 | 751.14 | 8.4 | 19.9 |
| 2003.0 | 11.0 | 40.4 | 74  | 9.5 | 1.57 | 38.96 | 146094 | 495.79 | 750.39 | 8.4 | 19.9 |
| 2004.0 | 12.5 | 35.6 | 74  | 9.5 | 1.47 | 39.04 | 146449 | 436.48 | 749.47 | 8.4 | 19.9 |
| 2005.0 | 10.5 | 34.9 | 56  | 9.5 | 1.43 | 39.14 | 146769 | 523.17 | 748.81 | 8.4 | 19.9 |
| 2006.0 | 11.4 | 32.3 | 74  | 9.5 | 1.46 | 39.22 | 147159 | 482.10 | 748.03 | 8.4 | 19.9 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | URNS   | ICOST  | CCOST  | PP  | FG   |
|--------|------|------|-----|-----|------|-------|--------|--------|--------|-----|------|
| 2007.0 | 12.1 | 34.8 | 73  | 9.5 | 1.46 | 39.31 | 147518 | 451.69 | 747.17 | 8.4 | 19.9 |
| 2008.0 | 17.3 | 32.2 | 72  | 9.5 | 1.32 | 39.36 | 147767 | 316.33 | 745.92 | 8.4 | 19.9 |
| 2009.0 | 15.0 | 32.2 | 72  | 9.5 | 1.36 | 39.43 | 148055 | 365.00 | 744.82 | 8.4 | 19.9 |
| 2010.0 | 16.1 | 32.3 | 72  | 9.5 | 1.34 | 39.49 | 148323 | 339.15 | 743.65 | 8.4 | 19.9 |
| 2011.0 | 10.8 | 30.0 | 64  | 9.5 | 1.40 | 39.58 | 148680 | 507.96 | 742.97 | 8.4 | 19.9 |
| 2012.0 | 15.3 | 27.1 | 59  | 9.4 | 1.25 | 39.65 | 148914 | 358.92 | 741.87 | 8.4 | 19.9 |
| 2013.0 | 18.8 | 25.5 | 82  | 9.4 | 1.26 | 39.70 | 149175 | 292.00 | 740.59 | 8.4 | 19.9 |
| 2014.0 | 17.8 | 27.3 | 61  | 9.4 | 1.21 | 39.76 | 149380 | 307.21 | 739.35 | 8.4 | 20.0 |
| 2015.0 | 18.7 | 23.8 | 58  | 9.4 | 1.14 | 39.81 | 149567 | 293.52 | 738.09 | 8.4 | 20.0 |
| 2016.0 | 12.6 | 23.3 | 58  | 9.4 | 1.25 | 39.89 | 149844 | 433.44 | 737.22 | 8.4 | 20.0 |
| 2017.0 | 15.9 | 20.0 | 62  | 9.4 | 1.15 | 39.96 | 150077 | 343.71 | 736.11 | 8.4 | 20.0 |
| 2018.0 | 28.3 | 29.2 | 77  | 9.4 | 1.17 | 39.99 | 150241 | 193.15 | 734.58 | 8.4 | 20.0 |
| 2019.0 | 18.8 | 30.5 | 86  | 9.4 | 1.34 | 40.04 | 150516 | 292.00 | 733.34 | 8.4 | 20.0 |
| 2020.0 | 23.1 | 31.1 | 84  | 9.4 | 1.28 | 40.09 | 150734 | 237.25 | 731.95 | 8.4 | 20.0 |
| 2021.0 | 17.6 | 29.1 | 86  | 9.4 | 1.34 | 40.14 | 151026 | 310.25 | 730.77 | 8.4 | 20.0 |
| 2022.0 | 6.4  | 31.6 | 88  | 9.4 | 1.69 | 40.30 | 151849 | 856.23 | 731.12 | 8.4 | 20.0 |
| 2023.0 | 3.0  | 35.0 | 47  | 9.4 | 1.79 | 40.64 | 152805 | 1846   | 734    | 8.4 | 20.0 |
| 2024.0 | 6.7  | 34.2 | 45  | 9.4 | 1.51 | 40.79 | 153209 | 821.25 | 734.46 | 8.4 | 20.0 |
| 2025.0 | 5.5  | 26.0 | 56  | 9.5 | 1.50 | 40.97 | 153821 | 997.67 | 735.19 | 8.4 | 20.0 |
| 2026.0 | 7.6  | 23.8 | 53  | 9.5 | 1.36 | 41.10 | 154240 | 717.83 | 735.14 | 8.4 | 20.0 |
| 2027.0 | 9.2  | 24.8 | 53  | 9.5 | 1.32 | 41.21 | 154583 | 594.65 | 734.75 | 8.4 | 20.0 |
| 2028.0 | 11.1 | 24.8 | 53  | 9.5 | 1.26 | 41.30 | 154868 | 494.27 | 734.10 | 8.4 | 20.0 |
| 2029.0 | 17.4 | 28.0 | 51  | 9.5 | 1.16 | 41.36 | 155042 | 314.81 | 732.95 | 8.4 | 20.0 |
| 2030.0 | 17.9 | 28.1 | 52  | 9.5 | 1.16 | 41.41 | 155216 | 305.69 | 731.79 | 8.4 | 20.0 |
| 2031.0 | 11.2 | 29.3 | 77  | 9.5 | 1.44 | 41.50 | 155630 | 488.19 | 731.12 | 8.4 | 20.0 |
| 2032.0 | 21.8 | 32.1 | 73  | 9.5 | 1.25 | 41.55 | 155830 | 250.94 | 729.82 | 8.4 | 20.0 |
| 2033.0 | 26.5 | 28.8 | 72  | 9.5 | 1.15 | 41.59 | 155994 | 206.83 | 728.41 | 8.4 | 20.0 |
| 2034.0 | 5.7  | 33.1 | 67  | 9.5 | 1.65 | 41.76 | 156701 | 967.25 | 729.05 | 8.4 | 20.0 |
| 2035.0 | 3.0  | 35.6 | 51  | 9.5 | 1.80 | 42.10 | 157717 | 1833   | 732    | 8.4 | 20.0 |
| 2036.0 | 3.8  | 34.2 | 50  | 9.5 | 1.70 | 42.36 | 158503 | 1436   | 734    | 8.4 | 20.0 |
| 2037.0 | 5.2  | 35.5 | 78  | 9.5 | 1.76 | 42.55 | 159402 | 1059   | 735    | 8.4 | 20.0 |
| 2038.0 | 6.2  | 34.2 | 67  | 9.5 | 1.64 | 42.72 | 160053 | 889.69 | 735.19 | 8.4 | 20.0 |
| 2039.0 | 5.0  | 21.1 | 60  | 9.5 | 1.46 | 42.91 | 160774 | 1090   | 736    | 8.4 | 20.0 |
| 2040.0 | 10.7 | 20.7 | 72  | 9.5 | 1.30 | 43.01 | 161180 | 512.52 | 735.54 | 8.4 | 20.0 |
| 2041.0 | 6.0  | 22.2 | 65  | 9.5 | 1.45 | 43.17 | 161824 | 906.42 | 735.99 | 8.4 | 20.0 |
| 2042.0 | 9.0  | 22.6 | 74  | 9.5 | 1.38 | 43.28 | 162316 | 605.29 | 735.65 | 8.4 | 20.0 |
| 2043.0 | 11.5 | 37.1 | 74  | 9.5 | 1.51 | 43.37 | 162701 | 476.02 | 734.96 | 8.4 | 20.0 |
| 2044.0 | 14.4 | 35.0 | 70  | 9.5 | 1.40 | 43.44 | 162991 | 380.21 | 734.03 | 8.4 | 20.0 |
| 2045.0 | 3.7  | 36.7 | 62  | 9.5 | 1.81 | 43.71 | 163989 | 1480   | 736    | 8.4 | 20.0 |
| 2046.0 | 3.2  | 38.6 | 64  | 9.5 | 1.89 | 44.02 | 165179 | 1699   | 738    | 8.4 | 20.0 |
| 2047.0 | 3.8  | 42.7 | 62  | 9.5 | 1.89 | 44.29 | 166163 | 1458   | 740    | 8.4 | 20.0 |
| 2048.0 | 3.2  | 42.3 | 52  | 9.5 | 1.89 | 44.60 | 167157 | 1734   | 743    | 8.4 | 20.0 |
| 2049.0 | 2.8  | 41.3 | 54  | 9.4 | 1.95 | 44.97 | 168333 | 1980   | 746    | 8.4 | 20.0 |
| 2050.0 | 3.4  | 39.3 | 70  | 9.4 | 1.94 | 45.26 | 169564 | 1595   | 748    | 8.4 | 20.0 |
| 2051.0 | 4.9  | 37.6 | 67  | 9.5 | 1.76 | 45.46 | 170379 | 1110   | 749    | 8.4 | 20.0 |
| 2052.0 | 4.6  | 38.4 | 66  | 9.5 | 1.79 | 45.68 | 171236 | 1194   | 750    | 8.4 | 20.0 |
| 2053.0 | 7.5  | 34.0 | 73  | 9.5 | 1.60 | 45.81 | 171816 | 725.44 | 750.36 | 8.4 | 20.0 |
| 2054.0 | 8.8  | 24.0 | 63  | 9.5 | 1.37 | 45.92 | 172244 | 623.54 | 750.04 | 8.4 | 20.0 |
| 2055.0 | 9.6  | 22.6 | 67  | 9.5 | 1.34 | 46.03 | 172665 | 570.31 | 749.58 | 8.4 | 20.0 |
| 2056.0 | 9.9  | 23.0 | 65  | 9.5 | 1.33 | 46.13 | 173058 | 550.54 | 749.07 | 8.4 | 20.0 |

| DEPTH  | ROP | WOB  | RPM | MW  | "d"e | HOURS | TURNS  | ICOST  | CCOST  | PP  | FG   |
|--------|-----|------|-----|-----|------|-------|--------|--------|--------|-----|------|
| 2057.0 | 7.7 | 20.1 | 64  | 9.5 | 1.35 | 46.26 | 173556 | 708.71 | 748.97 | 8.4 | 20.0 |
| 2058.0 | 6.1 | 25.0 | 65  | 9.5 | 1.50 | 46.42 | 174195 | 897.54 | 749.35 | 8.4 | 20.0 |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 8       | IADC CODE   | 517    | INTERVAL  | 2058.0- 2253.0 |
| HTC J22     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 6788.00 | TRIP TIME   | 6.8    | BIT RUN   | 195.0          |
| TOTAL HOURS | 26.10   | TOTAL TURNS | 89647  | CONDITION | T2 B2 G0.000   |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICDST | CCOST | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|-------|-------|-----|------|
| 2059.0 | 6.0  | 14.7 | 62  | 9.5 | 1.30 | 0.17  | 616   | 907   | 44925 | 8.4 | 20.0 |
| 2060.0 | 7.0  | 22.7 | 52  | 9.5 | 1.36 | 0.31  | 1060  | 782   | 22854 | 8.4 | 20.0 |
| 2061.0 | 5.0  | 24.0 | 51  | 9.5 | 1.47 | 0.51  | 1672  | 1095  | 15601 | 8.4 | 20.0 |
| 2062.0 | 12.2 | 28.8 | 50  | 9.5 | 1.27 | 0.59  | 1918  | 449   | 11813 | 8.4 | 20.0 |
| 2063.0 | 28.1 | 32.3 | 49  | 9.5 | 1.06 | 0.63  | 2023  | 195   | 9489  | 8.4 | 20.0 |
| 2064.0 | 26.1 | 35.5 | 48  | 9.5 | 1.10 | 0.66  | 2132  | 210   | 7943  | 8.4 | 20.0 |
| 2065.0 | 20.6 | 31.1 | 48  | 9.5 | 1.14 | 0.71  | 2274  | 266   | 6846  | 8.4 | 20.0 |
| 2066.0 | 25.4 | 33.4 | 48  | 9.5 | 1.09 | 0.75  | 2387  | 216   | 6017  | 8.4 | 20.0 |
| 2067.0 | 16.3 | 34.0 | 44  | 9.5 | 1.21 | 0.81  | 2550  | 336   | 5386  | 8.4 | 20.0 |
| 2068.0 | 18.2 | 32.1 | 47  | 9.5 | 1.18 | 0.87  | 2706  | 301   | 4877  | 8.4 | 20.0 |
| 2069.0 | 17.6 | 31.1 | 58  | 9.5 | 1.24 | 0.93  | 2904  | 310   | 4462  | 8.4 | 20.0 |
| 2070.0 | 30.5 | 34.5 | 59  | 9.5 | 1.11 | 0.96  | 3019  | 179   | 4105  | 8.4 | 20.0 |
| 2071.0 | 17.5 | 32.6 | 71  | 9.5 | 1.32 | 1.02  | 3263  | 313   | 3814  | 8.4 | 20.0 |
| 2072.0 | 18.0 | 34.9 | 71  | 9.5 | 1.33 | 1.07  | 3499  | 304   | 3563  | 8.4 | 20.0 |
| 2073.0 | 23.8 | 34.1 | 67  | 9.5 | 1.22 | 1.11  | 3668  | 230   | 3341  | 8.4 | 20.0 |
| 2074.0 | 9.3  | 35.2 | 72  | 9.5 | 1.55 | 1.22  | 4134  | 590   | 3169  | 8.4 | 20.0 |
| 2075.0 | 4.3  | 35.0 | 75  | 9.5 | 1.80 | 1.45  | 5182  | 1276  | 3058  | 8.4 | 20.0 |
| 2076.0 | 12.7 | 33.4 | 72  | 9.5 | 1.43 | 1.53  | 5521  | 430   | 2912  | 8.4 | 20.0 |
| 2077.0 | 21.8 | 35.1 | 65  | 9.5 | 1.25 | 1.58  | 5699  | 251   | 2772  | 8.4 | 20.0 |
| 2078.0 | 23.2 | 33.0 | 67  | 9.5 | 1.22 | 1.62  | 5872  | 236   | 2645  | 8.4 | 20.0 |
| 2079.0 | 20.0 | 38.0 | 58  | 9.5 | 1.27 | 1.67  | 6045  | 274   | 2532  | 8.4 | 20.0 |
| 2080.0 | 22.1 | 35.0 | 64  | 9.5 | 1.24 | 1.72  | 6219  | 248   | 2428  | 8.4 | 20.0 |
| 2081.0 | 4.7  | 39.1 | 72  | 9.5 | 1.82 | 1.93  | 7134  | 1159  | 2373  | 8.4 | 20.1 |
| 2082.0 | 5.3  | 40.6 | 60  | 9.5 | 1.74 | 2.12  | 7816  | 1030  | 2317  | 8.4 | 20.1 |
| 2083.0 | 8.0  | 45.1 | 60  | 9.5 | 1.66 | 2.24  | 8268  | 686   | 2252  | 8.4 | 20.1 |
| 2084.0 | 6.9  | 45.2 | 64  | 9.5 | 1.73 | 2.39  | 8827  | 798   | 2196  | 8.4 | 20.1 |
| 2085.0 | 13.3 | 43.8 | 64  | 9.5 | 1.50 | 2.46  | 9117  | 411   | 2130  | 8.4 | 20.1 |
| 2086.0 | 12.1 | 45.0 | 66  | 9.5 | 1.55 | 2.54  | 9443  | 452   | 2070  | 8.4 | 20.1 |
| 2087.0 | 12.0 | 44.9 | 65  | 9.5 | 1.55 | 2.63  | 9768  | 455   | 2014  | 8.4 | 20.1 |
| 2088.0 | 4.4  | 44.8 | 66  | 9.5 | 1.89 | 2.86  | 10673 | 1249  | 1988  | 8.4 | 20.1 |
| 2089.0 | 4.6  | 42.2 | 73  | 9.5 | 1.88 | 3.07  | 11631 | 1195  | 1963  | 8.4 | 20.1 |
| 2090.0 | 5.7  | 41.1 | 73  | 9.5 | 1.79 | 3.25  | 12399 | 963   | 1932  | 8.4 | 20.1 |
| 2091.0 | 5.5  | 42.0 | 71  | 9.5 | 1.80 | 3.43  | 13171 | 989   | 1903  | 8.4 | 20.1 |
| 2092.0 | 7.7  | 42.9 | 72  | 9.5 | 1.71 | 3.56  | 13732 | 769   | 1868  | 8.4 | 20.1 |
| 2093.0 | 13.3 | 40.5 | 67  | 9.5 | 1.48 | 3.64  | 14035 | 412   | 1826  | 8.4 | 20.1 |
| 2094.0 | 26.1 | 40.1 | 58  | 9.5 | 1.21 | 3.67  | 14169 | 210   | 1781  | 8.4 | 20.1 |
| 2095.0 | 21.7 | 40.7 | 63  | 9.5 | 1.30 | 3.72  | 14344 | 252   | 1740  | 8.4 | 20.1 |
| 2096.0 | 20.6 | 41.8 | 66  | 9.5 | 1.34 | 3.77  | 14537 | 266   | 1701  | 8.4 | 20.1 |
| 2097.0 | 12.9 | 40.8 | 69  | 9.5 | 1.50 | 3.85  | 14857 | 424   | 1669  | 8.4 | 20.1 |
| 2098.0 | 20.3 | 43.6 | 60  | 9.5 | 1.33 | 3.90  | 15034 | 269   | 1634  | 8.4 | 20.1 |
| 2099.0 | 21.7 | 45.9 | 72  | 9.5 | 1.39 | 3.94  | 15234 | 252   | 1600  | 8.4 | 20.1 |
| 2100.0 | 13.4 | 45.7 | 75  | 9.5 | 1.57 | 4.02  | 15568 | 408   | 1572  | 8.4 | 20.1 |
| 2101.0 | 11.8 | 46.3 | 76  | 9.5 | 1.62 | 4.10  | 15953 | 464   | 1546  | 8.4 | 20.1 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST | CCOST | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|-------|-------|-----|------|
| 2102.0 | 8.9  | 46.9 | 76  | 9.5 | 1.73 | 4.21  | 16467 | 614   | 1525  | 8.4 | 20.1 |
| 2103.0 | 8.3  | 47.2 | 76  | 9.5 | 1.75 | 4.33  | 17017 | 657   | 1505  | 8.4 | 20.1 |
| 2104.0 | 9.3  | 48.4 | 76  | 9.5 | 1.73 | 4.44  | 17510 | 589   | 1485  | 8.4 | 20.1 |
| 2105.0 | 7.7  | 46.1 | 73  | 9.5 | 1.75 | 4.57  | 18081 | 712   | 1469  | 8.4 | 20.1 |
| 2106.0 | 10.3 | 43.7 | 68  | 9.5 | 1.60 | 4.67  | 18478 | 534   | 1449  | 8.4 | 20.1 |
| 2107.0 | 27.5 | 46.2 | 54  | 9.5 | 1.22 | 4.70  | 18596 | 199   | 1424  | 8.4 | 20.1 |
| 2108.0 | 27.1 | 42.5 | 54  | 9.5 | 1.19 | 4.74  | 18717 | 202   | 1400  | 8.4 | 20.1 |
| 2109.0 | 29.0 | 43.1 | 51  | 9.5 | 1.15 | 4.78  | 18822 | 189   | 1376  | 8.4 | 20.1 |
| 2110.0 | 7.4  | 42.7 | 73  | 9.5 | 1.72 | 4.91  | 19412 | 739   | 1364  | 8.4 | 20.1 |
| 2111.0 | 12.9 | 42.8 | 57  | 9.5 | 1.46 | 4.99  | 19678 | 423   | 1346  | 8.4 | 20.1 |
| 2112.0 | 23.2 | 37.5 | 66  | 9.5 | 1.26 | 5.03  | 19849 | 236   | 1325  | 8.4 | 20.1 |
| 2113.0 | 25.2 | 36.5 | 61  | 9.5 | 1.20 | 5.07  | 19994 | 217   | 1305  | 8.4 | 20.1 |
| 2114.0 | 22.0 | 37.0 | 61  | 9.5 | 1.24 | 5.12  | 20160 | 249   | 1286  | 8.4 | 20.1 |
| 2115.0 | 25.5 | 35.6 | 57  | 9.5 | 1.16 | 5.16  | 20294 | 214   | 1267  | 8.4 | 20.1 |
| 2116.0 | 21.1 | 35.7 | 59  | 9.5 | 1.23 | 5.20  | 20461 | 260   | 1250  | 8.4 | 20.1 |
| 2117.0 | 20.6 | 35.1 | 61  | 9.5 | 1.25 | 5.25  | 20640 | 266   | 1233  | 8.4 | 20.1 |
| 2118.0 | 3.5  | 37.4 | 64  | 9.5 | 1.85 | 5.53  | 21731 | 1547  | 1239  | 8.4 | 20.1 |
| 2119.0 | 3.7  | 38.9 | 64  | 9.5 | 1.86 | 5.81  | 22779 | 1498  | 1243  | 8.4 | 20.1 |
| 2120.0 | 4.2  | 39.8 | 61  | 9.5 | 1.81 | 6.04  | 23650 | 1297  | 1244  | 8.4 | 20.1 |
| 2121.0 | 7.6  | 40.3 | 59  | 9.5 | 1.62 | 6.18  | 24119 | 721   | 1235  | 8.4 | 20.1 |
| 2122.0 | 15.0 | 40.6 | 46  | 9.5 | 1.32 | 6.24  | 24303 | 365   | 1222  | 8.4 | 20.1 |
| 2123.0 | 14.7 | 41.8 | 73  | 9.5 | 1.49 | 6.31  | 24600 | 373   | 1209  | 8.4 | 20.1 |
| 2124.0 | 10.4 | 39.6 | 72  | 9.5 | 1.57 | 6.41  | 25017 | 528   | 1198  | 8.4 | 20.1 |
| 2125.0 | 16.1 | 38.0 | 66  | 9.5 | 1.38 | 6.47  | 25263 | 340   | 1186  | 8.4 | 20.1 |
| 2126.0 | 16.6 | 42.5 | 65  | 9.5 | 1.42 | 6.53  | 25499 | 330   | 1173  | 8.4 | 20.1 |
| 2127.0 | 16.1 | 43.0 | 66  | 9.5 | 1.43 | 6.59  | 25745 | 340   | 1161  | 8.4 | 20.1 |
| 2128.0 | 20.7 | 36.7 | 61  | 9.5 | 1.26 | 6.64  | 25922 | 265   | 1148  | 8.4 | 20.1 |
| 2129.0 | 21.6 | 37.0 | 62  | 9.5 | 1.26 | 6.69  | 26095 | 253   | 1136  | 8.4 | 20.1 |
| 2130.0 | 18.3 | 38.3 | 65  | 9.5 | 1.34 | 6.74  | 26309 | 300   | 1124  | 8.4 | 20.1 |
| 2131.0 | 19.4 | 38.0 | 63  | 9.5 | 1.31 | 6.79  | 26504 | 282   | 1112  | 8.4 | 20.1 |
| 2132.0 | 14.9 | 38.3 | 70  | 9.5 | 1.43 | 6.86  | 26786 | 368   | 1102  | 8.4 | 20.1 |
| 2133.0 | 17.1 | 37.0 | 71  | 9.5 | 1.37 | 6.92  | 27035 | 320   | 1092  | 8.4 | 20.1 |
| 2134.0 | 10.7 | 37.9 | 74  | 9.5 | 1.55 | 7.01  | 27453 | 514   | 1084  | 8.4 | 20.1 |
| 2135.0 | 14.4 | 37.8 | 73  | 9.5 | 1.45 | 7.08  | 27757 | 380   | 1075  | 8.4 | 20.1 |
| 2136.0 | 11.7 | 39.2 | 73  | 9.5 | 1.53 | 7.17  | 28133 | 468   | 1067  | 8.4 | 20.1 |
| 2137.0 | 11.1 | 42.0 | 52  | 9.5 | 1.46 | 7.26  | 28411 | 491   | 1060  | 8.4 | 20.1 |
| 2138.0 | 16.1 | 39.8 | 64  | 9.5 | 1.39 | 7.32  | 28651 | 339   | 1051  | 8.4 | 20.1 |
| 2139.0 | 17.2 | 37.0 | 66  | 9.5 | 1.35 | 7.38  | 28882 | 318   | 1042  | 8.4 | 20.1 |
| 2140.0 | 15.1 | 39.3 | 61  | 9.5 | 1.39 | 7.44  | 29125 | 363   | 1034  | 8.4 | 20.1 |
| 2141.0 | 16.5 | 38.8 | 65  | 9.5 | 1.38 | 7.50  | 29361 | 332   | 1025  | 8.4 | 20.1 |
| 2142.0 | 9.1  | 40.1 | 68  | 9.5 | 1.60 | 7.61  | 29807 | 599   | 1020  | 8.4 | 20.1 |
| 2143.0 | 4.0  | 41.6 | 58  | 9.5 | 1.84 | 7.86  | 30677 | 1376  | 1024  | 8.4 | 20.1 |
| 2144.0 | 3.2  | 42.7 | 51  | 9.5 | 1.88 | 8.18  | 31641 | 1735  | 1033  | 8.4 | 20.1 |
| 2145.0 | 3.7  | 41.8 | 45  | 9.5 | 1.78 | 8.45  | 32361 | 1468  | 1038  | 8.4 | 20.1 |
| 2146.0 | 4.0  | 44.4 | 62  | 9.5 | 1.90 | 8.70  | 33289 | 1367  | 1041  | 8.4 | 20.1 |
| 2147.0 | 4.8  | 42.1 | 60  | 9.5 | 1.79 | 8.91  | 34034 | 1132  | 1042  | 8.4 | 20.1 |
| 2148.0 | 12.5 | 39.6 | 52  | 9.5 | 1.41 | 8.99  | 34285 | 438   | 1036  | 8.4 | 20.1 |
| 2149.0 | 10.1 | 38.5 | 58  | 9.5 | 1.49 | 9.09  | 34629 | 544   | 1030  | 8.4 | 20.2 |
| 2150.0 | 11.5 | 38.6 | 58  | 9.5 | 1.45 | 9.17  | 34929 | 476   | 1024  | 8.4 | 20.2 |
| 2151.0 | 8.1  | 39.2 | 57  | 9.5 | 1.57 | 9.30  | 35350 | 672   | 1021  | 8.4 | 20.2 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST  | CCOST  | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|--------|--------|-----|------|
| 2152.0 | 19.6 | 38.0 | 70  | 9.5 | 1.34 | 9.35  | 35565 | 280    | 1013   | 8.4 | 20.2 |
| 2153.0 | 4.3  | 38.7 | 90  | 9.5 | 1.92 | 9.58  | 36830 | 1281   | 1015   | 8.4 | 20.2 |
| 2154.0 | 3.6  | 40.5 | 55  | 9.5 | 1.84 | 9.86  | 37753 | 1536   | 1021   | 8.4 | 20.2 |
| 2155.0 | 5.2  | 43.7 | 51  | 9.5 | 1.73 | 10.05 | 38343 | 1062   | 1021   | 8.4 | 20.2 |
| 2156.0 | 4.4  | 42.3 | 76  | 9.5 | 1.90 | 10.28 | 39375 | 1243   | 1024   | 8.4 | 20.2 |
| 2157.0 | 4.4  | 44.1 | 76  | 9.5 | 1.92 | 10.51 | 40396 | 1232   | 1026   | 8.4 | 20.2 |
| 2158.0 | 6.3  | 44.4 | 56  | 9.5 | 1.71 | 10.67 | 40935 | 874    | 1024   | 8.4 | 20.2 |
| 2159.0 | 10.1 | 39.5 | 40  | 9.5 | 1.39 | 10.77 | 41176 | 544    | 1019   | 8.4 | 20.2 |
| 2160.0 | 10.0 | 40.6 | 48  | 9.5 | 1.46 | 10.87 | 41466 | 548    | 1015   | 8.4 | 20.2 |
| 2161.0 | 11.0 | 40.1 | 42  | 9.5 | 1.38 | 10.96 | 41692 | 497    | 1010   | 8.4 | 20.2 |
| 2162.0 | 2.9  | 40.3 | 55  | 9.5 | 1.90 | 11.30 | 42820 | 1862   | 1018   | 8.4 | 20.2 |
| 2163.0 | 4.1  | 43.5 | 54  | 9.5 | 1.83 | 11.54 | 43606 | 1329   | 1021   | 8.4 | 20.2 |
| 2164.0 | 4.2  | 43.4 | 56  | 9.5 | 1.83 | 11.78 | 44402 | 1306   | 1024   | 8.4 | 20.2 |
| 2165.0 | 4.8  | 40.1 | 55  | 9.5 | 1.74 | 11.99 | 45084 | 1138   | 1025   | 8.4 | 20.2 |
| 2166.0 | 4.1  | 38.0 | 55  | 9.5 | 1.76 | 12.23 | 45879 | 1320   | 1027   | 8.4 | 20.2 |
| 2167.0 | 7.9  | 39.0 | 52  | 9.5 | 1.55 | 12.35 | 46276 | 695    | 1024   | 8.4 | 20.2 |
| 2168.0 | 14.6 | 42.8 | 47  | 9.5 | 1.36 | 12.42 | 46471 | 376    | 1018   | 8.4 | 20.2 |
| 2169.0 | 15.7 | 40.5 | 44  | 9.4 | 1.30 | 12.49 | 46639 | 350    | 1012   | 8.4 | 20.2 |
| 2170.0 | 14.6 | 41.3 | 49  | 9.4 | 1.37 | 12.55 | 46843 | 376    | 1007   | 8.4 | 20.2 |
| 2171.0 | 17.6 | 41.0 | 46  | 9.4 | 1.28 | 12.61 | 47001 | 312    | 1001   | 8.4 | 20.2 |
| 2172.0 | 6.6  | 42.2 | 56  | 9.4 | 1.68 | 12.76 | 47511 | 833.42 | 999.13 | 8.4 | 20.2 |
| 2173.0 | 3.4  | 43.9 | 53  | 9.5 | 1.89 | 13.06 | 48450 | 1629   | 1005   | 8.4 | 20.2 |
| 2174.0 | 3.9  | 41.4 | 52  | 9.5 | 1.81 | 13.32 | 49254 | 1408   | 1008   | 8.4 | 20.2 |
| 2175.0 | 3.4  | 43.5 | 51  | 9.5 | 1.87 | 13.61 | 50159 | 1604   | 1013   | 8.4 | 20.2 |
| 2176.0 | 3.6  | 44.2 | 49  | 9.4 | 1.87 | 13.89 | 50974 | 1531   | 1018   | 8.4 | 20.2 |
| 2177.0 | 3.2  | 46.0 | 50  | 9.4 | 1.94 | 14.20 | 51914 | 1706   | 1023   | 8.4 | 20.2 |
| 2178.0 | 3.4  | 42.8 | 50  | 9.4 | 1.88 | 14.50 | 52797 | 1615   | 1028   | 8.4 | 20.2 |
| 2179.0 | 3.3  | 43.2 | 52  | 9.3 | 1.92 | 14.80 | 53735 | 1655   | 1033   | 8.4 | 20.2 |
| 2180.0 | 3.6  | 43.3 | 53  | 9.3 | 1.91 | 15.08 | 54630 | 1533   | 1038   | 8.4 | 20.2 |
| 2181.0 | 3.4  | 43.4 | 45  | 9.3 | 1.87 | 15.37 | 55420 | 1604   | 1042   | 8.4 | 20.2 |
| 2182.0 | 6.1  | 43.1 | 49  | 9.3 | 1.70 | 15.54 | 55903 | 897    | 1041   | 8.4 | 20.2 |
| 2183.0 | 11.4 | 41.2 | 48  | 9.3 | 1.46 | 15.62 | 56156 | 479    | 1037   | 8.4 | 20.2 |
| 2184.0 | 4.1  | 40.4 | 51  | 9.3 | 1.80 | 15.87 | 56897 | 1323   | 1039   | 8.4 | 20.2 |
| 2185.0 | 8.4  | 44.2 | 53  | 9.2 | 1.64 | 15.99 | 57273 | 651    | 1036   | 8.4 | 20.2 |
| 2186.0 | 8.9  | 39.7 | 53  | 9.2 | 1.57 | 16.10 | 57632 | 617    | 1032   | 8.4 | 20.2 |
| 2187.0 | 6.0  | 43.6 | 59  | 9.2 | 1.79 | 16.26 | 58223 | 909    | 1032   | 8.4 | 20.2 |
| 2188.0 | 12.2 | 41.8 | 47  | 9.2 | 1.45 | 16.35 | 58456 | 450    | 1027   | 8.4 | 20.2 |
| 2189.0 | 8.8  | 42.9 | 59  | 9.2 | 1.65 | 16.46 | 58856 | 621    | 1024   | 8.4 | 20.2 |
| 2190.0 | 6.3  | 42.9 | 59  | 9.2 | 1.76 | 16.62 | 59418 | 864    | 1023   | 8.4 | 20.2 |
| 2191.0 | 6.8  | 41.9 | 61  | 9.2 | 1.74 | 16.76 | 59958 | 806    | 1021   | 8.4 | 20.2 |
| 2192.0 | 14.5 | 42.0 | 50  | 9.2 | 1.41 | 16.83 | 60164 | 377    | 1016   | 8.4 | 20.2 |
| 2193.0 | 18.6 | 36.4 | 49  | 9.2 | 1.26 | 16.89 | 60322 | 295    | 1011   | 8.4 | 20.2 |
| 2194.0 | 21.2 | 36.4 | 48  | 9.2 | 1.21 | 16.93 | 60458 | 259    | 1005   | 8.4 | 20.2 |
| 2195.0 | 14.5 | 39.2 | 48  | 9.2 | 1.37 | 17.00 | 60656 | 377    | 1001   | 8.4 | 20.2 |
| 2196.0 | 16.7 | 39.6 | 51  | 9.2 | 1.35 | 17.06 | 60841 | 328.50 | 995.96 | 8.4 | 20.2 |
| 2197.0 | 18.8 | 40.0 | 56  | 9.2 | 1.34 | 17.12 | 61019 | 292.00 | 990.89 | 8.4 | 20.2 |
| 2198.0 | 15.5 | 40.0 | 55  | 9.2 | 1.40 | 17.18 | 61231 | 352.83 | 986.34 | 8.4 | 20.2 |
| 2199.0 | 18.8 | 40.0 | 59  | 9.2 | 1.36 | 17.23 | 61419 | 292.00 | 981.41 | 8.4 | 20.2 |
| 2200.0 | 17.5 | 38.6 | 68  | 9.2 | 1.42 | 17.29 | 61653 | 313.29 | 976.71 | 8.4 | 20.2 |
| 2201.0 | 8.6  | 39.3 | 64  | 9.2 | 1.64 | 17.41 | 62102 | 638.75 | 974.34 | 8.4 | 20.2 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST  | CCOST  | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|--------|--------|-----|------|
| 2202.0 | 5.2  | 41.0 | 62  | 9.2 | 1.82 | 17.60 | 62814 | 1049   | 975    | 8.4 | 20.2 |
| 2203.0 | 3.7  | 43.2 | 57  | 9.2 | 1.94 | 17.87 | 63729 | 1466   | 978    | 8.4 | 20.2 |
| 2204.0 | 3.6  | 46.3 | 55  | 9.2 | 1.98 | 18.14 | 64641 | 1513   | 982    | 8.4 | 20.2 |
| 2205.0 | 4.2  | 43.7 | 54  | 9.2 | 1.88 | 18.38 | 65415 | 1300   | 984    | 8.4 | 20.2 |
| 2206.0 | 5.2  | 44.0 | 50  | 9.2 | 1.79 | 18.57 | 65989 | 1052   | 985    | 8.4 | 20.2 |
| 2207.0 | 4.9  | 38.7 | 49  | 9.2 | 1.74 | 18.78 | 66598 | 1127   | 985    | 8.4 | 20.2 |
| 2208.0 | 10.9 | 38.2 | 51  | 9.2 | 1.47 | 18.87 | 66878 | 500.35 | 982.27 | 8.4 | 20.2 |
| 2209.0 | 15.6 | 38.9 | 61  | 9.2 | 1.42 | 18.94 | 67115 | 351.31 | 978.09 | 8.4 | 20.2 |
| 2210.0 | 10.9 | 38.8 | 43  | 9.2 | 1.42 | 19.03 | 67352 | 503.40 | 974.96 | 8.4 | 20.2 |
| 2211.0 | 9.7  | 38.3 | 65  | 9.2 | 1.59 | 19.13 | 67752 | 564.23 | 972.28 | 8.4 | 20.2 |
| 2212.0 | 14.0 | 35.2 | 52  | 9.2 | 1.36 | 19.20 | 67975 | 390.85 | 968.50 | 8.4 | 20.2 |
| 2213.0 | 3.0  | 37.9 | 52  | 9.2 | 1.90 | 19.53 | 69009 | 1805   | 974    | 8.4 | 20.2 |
| 2214.0 | 3.6  | 39.6 | 52  | 9.2 | 1.86 | 19.81 | 69868 | 1503   | 977    | 8.4 | 20.2 |
| 2215.0 | 5.3  | 43.8 | 50  | 9.3 | 1.77 | 20.00 | 70444 | 1042   | 978    | 8.4 | 20.2 |
| 2216.0 | 4.1  | 45.1 | 57  | 9.3 | 1.90 | 20.24 | 71268 | 1326   | 980    | 8.4 | 20.2 |
| 2217.0 | 3.6  | 43.5 | 42  | 9.3 | 1.83 | 20.52 | 71967 | 1535   | 983    | 8.4 | 20.2 |
| 2218.0 | 3.4  | 45.1 | 42  | 9.3 | 1.87 | 20.82 | 72722 | 1623   | 987    | 8.4 | 20.2 |
| 2219.0 | 3.0  | 44.7 | 49  | 9.3 | 1.96 | 21.15 | 73692 | 1808   | 992    | 8.4 | 20.3 |
| 2220.0 | 3.7  | 45.8 | 50  | 9.3 | 1.91 | 21.41 | 74500 | 1466   | 995    | 8.4 | 20.3 |
| 2221.0 | 2.6  | 47.0 | 33  | 9.3 | 1.90 | 21.79 | 75257 | 2087   | 1002   | 8.4 | 20.3 |
| 2222.0 | 4.7  | 45.5 | 39  | 9.3 | 1.73 | 22.01 | 75752 | 1170   | 1003   | 8.4 | 20.3 |
| 2223.0 | 15.5 | 46.7 | 51  | 9.3 | 1.42 | 22.07 | 75948 | 352.83 | 999.19 | 8.4 | 20.3 |
| 2224.0 | 10.6 | 45.7 | 50  | 9.3 | 1.54 | 22.17 | 76228 | 515.56 | 996.27 | 8.4 | 20.3 |
| 2225.0 | 12.9 | 45.5 | 47  | 9.3 | 1.45 | 22.24 | 76449 | 424.31 | 992.85 | 8.4 | 20.3 |
| 2226.0 | 11.5 | 42.7 | 40  | 9.3 | 1.40 | 22.33 | 76655 | 474.50 | 989.76 | 8.4 | 20.3 |
| 2227.0 | 10.3 | 45.0 | 40  | 9.2 | 1.49 | 22.43 | 76889 | 532.29 | 987.06 | 8.4 | 20.3 |
| 2228.0 | 3.4  | 45.0 | 53  | 9.2 | 1.97 | 22.72 | 77818 | 1589   | 991    | 8.4 | 20.3 |
| 2229.0 | 4.3  | 43.1 | 58  | 9.2 | 1.89 | 22.95 | 78635 | 1282   | 992    | 8.4 | 20.3 |
| 2230.0 | 3.0  | 43.5 | 62  | 9.2 | 2.04 | 23.28 | 79858 | 1813   | 997    | 8.4 | 20.3 |
| 2231.0 | 6.1  | 45.3 | 55  | 9.2 | 1.78 | 23.45 | 80394 | 894.25 | 996.48 | 8.4 | 20.3 |
| 2232.0 | 9.9  | 41.1 | 46  | 9.2 | 1.50 | 23.55 | 80669 | 550.54 | 993.92 | 8.4 | 20.3 |
| 2233.0 | 12.9 | 38.5 | 48  | 9.2 | 1.40 | 23.63 | 80893 | 424.31 | 990.66 | 8.4 | 20.3 |
| 2234.0 | 12.1 | 38.6 | 54  | 9.2 | 1.46 | 23.71 | 81161 | 453.21 | 987.61 | 8.4 | 20.3 |
| 2235.0 | 3.4  | 41.0 | 57  | 9.2 | 1.94 | 24.01 | 82175 | 1629   | 991    | 8.4 | 20.3 |
| 2236.0 | 3.4  | 42.2 | 48  | 9.2 | 1.90 | 24.30 | 83033 | 1624   | 995    | 8.4 | 20.3 |
| 2237.0 | 20.7 | 46.0 | 72  | 9.2 | 1.46 | 24.35 | 83243 | 264.63 | 990.71 | 8.4 | 20.3 |
| 2238.0 | 18.3 | 44.6 | 71  | 9.2 | 1.48 | 24.41 | 83477 | 299.60 | 986.87 | 8.4 | 20.3 |
| 2239.0 | 7.3  | 43.9 | 41  | 9.2 | 1.60 | 24.54 | 83817 | 752.81 | 985.58 | 8.4 | 20.3 |
| 2240.0 | 20.7 | 42.3 | 68  | 9.2 | 1.40 | 24.59 | 84016 | 264.63 | 981.61 | 8.4 | 20.3 |
| 2241.0 | 8.3  | 43.3 | 75  | 9.2 | 1.75 | 24.71 | 84555 | 660.04 | 979.86 | 8.4 | 20.3 |
| 2242.0 | 16.4 | 43.0 | 66  | 9.2 | 1.47 | 24.77 | 84795 | 333.06 | 976.34 | 8.4 | 20.3 |
| 2243.0 | 15.3 | 40.7 | 76  | 9.2 | 1.52 | 24.84 | 85093 | 357.40 | 973.00 | 8.4 | 20.3 |
| 2244.0 | 16.3 | 44.2 | 70  | 9.2 | 1.51 | 24.90 | 85352 | 336.10 | 969.57 | 8.4 | 20.3 |
| 2245.0 | 15.3 | 42.2 | 65  | 9.2 | 1.49 | 24.96 | 85609 | 358.92 | 966.31 | 8.4 | 20.3 |
| 2246.0 | 15.1 | 43.0 | 69  | 9.2 | 1.52 | 25.03 | 85884 | 361.96 | 963.09 | 8.4 | 20.3 |
| 2247.0 | 14.3 | 44.0 | 69  | 9.2 | 1.55 | 25.10 | 86173 | 383.25 | 960.02 | 8.4 | 20.3 |
| 2248.0 | 11.8 | 44.0 | 68  | 9.2 | 1.61 | 25.19 | 86521 | 463.85 | 957.41 | 8.4 | 20.3 |
| 2249.0 | 4.4  | 45.4 | 73  | 9.2 | 1.99 | 25.41 | 87509 | 1232   | 959    | 8.4 | 20.3 |
| 2250.0 | 3.1  | 44.6 | 50  | 9.2 | 1.98 | 25.73 | 88482 | 1761   | 963    | 8.4 | 20.3 |
| 2251.0 | 4.3  | 43.6 | 49  | 9.2 | 1.84 | 25.96 | 89165 | 1274   | 965    | 8.4 | 20.3 |



| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST  | CCOST  | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|--------|--------|-----|------|
| 2252.0 | 13.8 | 40.9 | 54  | 9.2 | 1.44 | 26.04 | 89398 | 396.94 | 961.72 | 8.4 | 20.3 |
| 2253.0 | 14.9 | 40.0 | 62  | 9.2 | 1.45 | 26.10 | 89647 | 366.52 | 958.66 | 8.4 | 20.3 |

|             |      |             |       |           |                |
|-------------|------|-------------|-------|-----------|----------------|
| BIT NUMBER  | 8    | IADC CODE   | 4     | INTERVAL  | 2253.0- 2265.1 |
| CHRIS RC3   |      | SIZE        | 8.500 | NOZZLES   | 15 15 14       |
| COST        | 0.00 | TRIP TIME   | 6.8   | BIT RUN   | 12.1           |
| TOTAL HOURS | 2.42 | TOTAL TURNS | 10122 | CONDITION | TO B0 G0.700   |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST | CCOST  | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|-------|--------|-----|------|
| 2253.2 | 45.0 | 5.9  | 94  | 9.3 | 0.82 | 0.00  | 25    | 122   | 186272 | 8.4 | 20.3 |
| 2253.4 | 26.3 | 8.7  | 96  | 9.3 | 1.03 | 0.01  | 69    | 208   | 93240  | 8.4 | 20.3 |
| 2253.6 | 23.5 | 7.0  | 94  | 9.3 | 1.00 | 0.02  | 117   | 233   | 62238  | 8.4 | 20.3 |
| 2253.8 | 15.7 | 12.3 | 93  | 9.3 | 1.24 | 0.03  | 188   | 350   | 46766  | 8.4 | 20.3 |
| 2254.0 | 11.6 | 11.8 | 93  | 9.3 | 1.31 | 0.05  | 284   | 471   | 37507  | 8.4 | 20.3 |
| 2254.2 | 11.3 | 11.4 | 94  | 9.3 | 1.31 | 0.07  | 385   | 487   | 31337  | 8.4 | 20.3 |
| 2254.4 | 8.4  | 14.7 | 99  | 9.3 | 1.49 | 0.09  | 527   | 654   | 26954  | 8.4 | 20.3 |
| 2254.6 | 18.0 | 15.8 | 99  | 9.3 | 1.30 | 0.10  | 593   | 304   | 23622  | 8.4 | 20.3 |
| 2254.8 | 15.3 | 14.7 | 92  | 9.3 | 1.30 | 0.12  | 665   | 357   | 21037  | 8.4 | 20.3 |
| 2255.0 | 26.7 | 11.7 | 90  | 9.3 | 1.08 | 0.12  | 706   | 205   | 18954  | 8.4 | 20.3 |
| 2255.2 | 18.0 | 13.7 | 89  | 9.3 | 1.23 | 0.14  | 765   | 304   | 17259  | 8.4 | 20.3 |
| 2255.4 | 37.9 | 15.7 | 91  | 9.3 | 1.07 | 0.14  | 794   | 144   | 15833  | 8.4 | 20.3 |
| 2255.6 | 20.0 | 13.5 | 90  | 9.3 | 1.20 | 0.15  | 848   | 274   | 14636  | 8.4 | 20.3 |
| 2255.8 | 22.5 | 13.0 | 91  | 9.3 | 1.16 | 0.16  | 897   | 243   | 13608  | 8.4 | 20.3 |
| 2256.0 | 18.0 | 13.2 | 86  | 9.3 | 1.21 | 0.17  | 954   | 304   | 12721  | 8.4 | 20.3 |
| 2256.2 | 20.6 | 10.5 | 87  | 9.3 | 1.11 | 0.18  | 1005  | 266   | 11942  | 8.4 | 20.3 |
| 2256.4 | 34.3 | 9.6  | 79  | 9.3 | 0.93 | 0.19  | 1032  | 160   | 11249  | 8.4 | 20.3 |
| 2256.6 | 25.7 | 11.7 | 76  | 9.3 | 1.05 | 0.19  | 1068  | 213   | 10636  | 8.4 | 20.3 |
| 2256.8 | 19.5 | 12.9 | 81  | 9.3 | 1.16 | 0.20  | 1118  | 281   | 10091  | 8.4 | 20.3 |
| 2257.0 | 13.3 | 7.7  | 80  | 9.3 | 1.12 | 0.22  | 1190  | 411   | 9607   | 8.4 | 20.3 |
| 2257.2 | 11.6 | 10.6 | 79  | 9.3 | 1.24 | 0.24  | 1272  | 471   | 9172   | 8.4 | 20.3 |
| 2257.4 | 10.7 | 10.9 | 80  | 9.3 | 1.27 | 0.25  | 1361  | 509   | 8778   | 8.4 | 20.3 |
| 2257.6 | 14.1 | 11.1 | 75  | 9.3 | 1.18 | 0.27  | 1425  | 388   | 8414   | 8.4 | 20.3 |
| 2257.8 | 10.0 | 11.2 | 71  | 9.3 | 1.26 | 0.29  | 1510  | 548   | 8086   | 8.4 | 20.3 |
| 2258.0 | 15.7 | 9.5  | 70  | 9.3 | 1.10 | 0.30  | 1564  | 350   | 7776   | 8.4 | 20.3 |
| 2258.2 | 11.8 | 9.0  | 75  | 9.3 | 1.17 | 0.32  | 1640  | 464   | 7495   | 8.4 | 20.3 |
| 2258.4 | 7.1  | 12.2 | 72  | 9.3 | 1.38 | 0.35  | 1762  | 768   | 7246   | 8.4 | 20.3 |
| 2258.6 | 5.6  | 11.0 | 71  | 9.3 | 1.40 | 0.38  | 1914  | 981   | 7022   | 8.4 | 20.3 |
| 2258.8 | 4.3  | 8.6  | 71  | 9.3 | 1.39 | 0.43  | 2111  | 1262  | 6824   | 8.4 | 20.3 |
| 2259.0 | 2.6  | 10.4 | 71  | 9.3 | 1.58 | 0.51  | 2437  | 2091  | 6666   | 8.4 | 20.3 |
| 2259.2 | 4.2  | 12.6 | 71  | 9.3 | 1.53 | 0.55  | 2642  | 1308  | 6493   | 8.4 | 20.3 |
| 2259.4 | 1.4  | 11.5 | 72  | 9.3 | 1.80 | 0.70  | 3277  | 4053  | 6417   | 8.4 | 20.3 |
| 2259.6 | 1.4  | 15.0 | 72  | 9.3 | 1.91 | 0.85  | 3904  | 3992  | 6343   | 8.4 | 20.3 |
| 2259.8 | 0.7  | 14.5 | 72  | 9.3 | 2.07 | 1.12  | 5066  | 7368  | 6373   | 8.4 | 20.3 |
| 2260.0 | 0.7  | 15.0 | 71  | 9.3 | 2.12 | 1.42  | 6364  | 8372  | 6431   | 8.4 | 20.3 |
| 2260.2 | 3.2  | 15.0 | 63  | 9.3 | 1.64 | 1.48  | 6599  | 1703  | 6299   | 8.4 | 20.3 |
| 2260.4 | 4.0  | 18.4 | 72  | 9.2 | 1.73 | 1.53  | 6816  | 1384  | 6166   | 8.4 | 20.3 |
| 2260.6 | 6.0  | 16.5 | 75  | 9.2 | 1.57 | 1.57  | 6966  | 912   | 6028   | 8.4 | 20.3 |
| 2260.8 | 6.8  | 14.4 | 71  | 9.2 | 1.46 | 1.60  | 7091  | 806   | 5894   | 8.4 | 20.3 |
| 2261.0 | 6.9  | 14.7 | 62  | 9.2 | 1.43 | 1.63  | 7199  | 791   | 5767   | 8.4 | 20.3 |
| 2261.2 | 4.9  | 13.9 | 61  | 9.2 | 1.50 | 1.67  | 7346  | 1110  | 5653   | 8.4 | 20.3 |
| 2261.4 | 3.6  | 12.9 | 61  | 9.2 | 1.56 | 1.72  | 7550  | 1536  | 5555   | 8.4 | 20.3 |
| 2261.6 | 3.9  | 14.9 | 61  | 9.2 | 1.59 | 1.77  | 7736  | 1399  | 5458   | 8.4 | 20.3 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST | CCOST | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|-------|-------|-----|------|
| 2261.8 | 4.6  | 13.5 | 61  | 9.2 | 1.51 | 1.82  | 7895  | 1186  | 5361  | 8.4 | 20.3 |
| 2262.0 | 8.8  | 13.6 | 61  | 9.2 | 1.33 | 1.84  | 7978  | 624   | 5256  | 8.4 | 20.3 |
| 2262.2 | 5.9  | 16.6 | 61  | 9.2 | 1.52 | 1.87  | 8101  | 928   | 5162  | 8.4 | 20.3 |
| 2262.4 | 11.3 | 16.7 | 61  | 9.2 | 1.33 | 1.89  | 8166  | 487   | 5062  | 8.4 | 20.3 |
| 2262.6 | 6.5  | 15.2 | 61  | 9.2 | 1.45 | 1.92  | 8277  | 836   | 4974  | 8.4 | 20.3 |
| 2262.8 | 6.8  | 16.2 | 60  | 9.2 | 1.46 | 1.95  | 8384  | 806   | 4889  | 8.4 | 20.3 |
| 2263.0 | 6.9  | 16.4 | 61  | 9.2 | 1.47 | 1.98  | 8489  | 791   | 4807  | 8.4 | 20.3 |
| 2263.2 | 27.7 | 13.2 | 61  | 9.2 | 1.01 | 1.99  | 8515  | 198   | 4717  | 8.4 | 20.3 |
| 2263.4 | 6.2  | 17.3 | 61  | 9.2 | 1.52 | 2.02  | 8633  | 882   | 4643  | 8.4 | 20.3 |
| 2263.6 | 4.1  | 14.0 | 61  | 9.2 | 1.55 | 2.07  | 8811  | 1338  | 4581  | 8.4 | 20.3 |
| 2263.8 | 7.1  | 12.9 | 61  | 9.2 | 1.37 | 2.10  | 8915  | 776   | 4510  | 8.4 | 20.3 |
| 2264.0 | 8.2  | 14.0 | 62  | 9.2 | 1.37 | 2.12  | 9005  | 669   | 4441  | 8.4 | 20.3 |
| 2264.2 | 14.4 | 13.0 | 72  | 9.2 | 1.23 | 2.14  | 9065  | 380   | 4368  | 8.4 | 20.3 |
| 2264.4 | 17.1 | 12.4 | 63  | 9.2 | 1.13 | 2.15  | 9110  | 319   | 4297  | 8.4 | 20.3 |
| 2264.6 | 2.2  | 12.9 | 61  | 9.2 | 1.69 | 2.24  | 9442  | 2479  | 4266  | 8.4 | 20.3 |
| 2264.8 | 2.0  | 13.2 | 61  | 9.2 | 1.72 | 2.34  | 9804  | 2707  | 4239  | 8.4 | 20.3 |
| 2265.0 | 4.6  | 14.8 | 61  | 9.2 | 1.54 | 2.38  | 9962  | 1186  | 4188  | 8.4 | 20.3 |
| 2265.1 | 2.4  | 14.0 | 64  | 9.2 | 1.71 | 2.42  | 10122 | 2281  | 4173  | 8.4 | 20.3 |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 9       | IADC CODE   | 517    | INTERVAL  | 2265.1- 2450.0 |
| HTC J22     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 6788.00 | TRIP TIME   | 7.2    | BIT RUN   | 184.9          |
| TOTAL HOURS | 38.89   | TOTAL TURNS | 125062 | CONDITION | T3 B4 G0.125   |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST | CCOST | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|-------|-------|-----|------|
| 2266.0 | 6.0  | 22.0 | 49  | 9.3 | 1.41 | 0.15  | 446   | 920   | 52262 | 8.4 | 20.3 |
| 2267.0 | 3.4  | 23.6 | 46  | 9.3 | 1.57 | 0.44  | 1256  | 1603  | 25600 | 8.4 | 20.3 |
| 2268.0 | 2.0  | 25.6 | 47  | 9.3 | 1.77 | 0.94  | 2674  | 2736  | 17716 | 8.4 | 20.3 |
| 2269.0 | 2.5  | 31.6 | 53  | 9.3 | 1.84 | 1.34  | 3940  | 2167  | 13729 | 8.4 | 20.3 |
| 2270.0 | 2.2  | 30.5 | 53  | 9.3 | 1.87 | 1.79  | 5390  | 2477  | 11433 | 8.4 | 20.3 |
| 2271.0 | 3.5  | 33.1 | 55  | 9.3 | 1.78 | 2.08  | 6335  | 1554  | 9758  | 8.4 | 20.3 |
| 2272.0 | 3.6  | 40.4 | 55  | 9.3 | 1.88 | 2.35  | 7252  | 1527  | 8565  | 8.4 | 20.3 |
| 2273.0 | 3.9  | 41.0 | 56  | 9.3 | 1.86 | 2.61  | 8115  | 1401  | 7658  | 8.4 | 20.3 |
| 2274.0 | 3.6  | 41.5 | 55  | 9.3 | 1.89 | 2.89  | 9036  | 1527  | 6969  | 8.4 | 20.3 |
| 2275.0 | 3.7  | 41.8 | 57  | 9.3 | 1.90 | 3.16  | 9952  | 1468  | 6414  | 8.4 | 20.3 |
| 2276.0 | 3.3  | 39.7 | 54  | 9.3 | 1.89 | 3.46  | 10933 | 1662  | 5978  | 8.4 | 20.3 |
| 2277.0 | 4.8  | 41.0 | 49  | 9.3 | 1.75 | 3.67  | 11543 | 1138  | 5571  | 8.4 | 20.3 |
| 2278.0 | 4.6  | 41.1 | 51  | 9.3 | 1.78 | 3.89  | 12214 | 1197  | 5232  | 8.4 | 20.3 |
| 2279.0 | 3.9  | 39.2 | 49  | 9.3 | 1.79 | 4.14  | 12956 | 1395  | 4956  | 8.4 | 20.3 |
| 2280.0 | 3.9  | 39.5 | 49  | 9.3 | 1.80 | 4.40  | 13712 | 1411  | 4718  | 8.4 | 20.3 |
| 2281.0 | 6.8  | 38.2 | 53  | 9.3 | 1.63 | 4.55  | 14184 | 806   | 4472  | 8.4 | 20.3 |
| 2282.0 | 4.6  | 38.5 | 57  | 9.3 | 1.78 | 4.76  | 14927 | 1185  | 4277  | 8.4 | 20.3 |
| 2283.0 | 3.6  | 38.5 | 52  | 9.3 | 1.83 | 5.04  | 15787 | 1513  | 4123  | 8.4 | 20.3 |
| 2284.0 | 5.3  | 44.5 | 49  | 9.3 | 1.77 | 5.23  | 16350 | 1039  | 3960  | 8.4 | 20.3 |
| 2285.0 | 5.8  | 44.6 | 37  | 9.3 | 1.64 | 5.40  | 16738 | 947   | 3808  | 8.4 | 20.3 |
| 2286.0 | 4.5  | 45.7 | 50  | 9.3 | 1.84 | 5.63  | 17405 | 1221  | 3685  | 8.4 | 20.3 |
| 2287.0 | 4.8  | 44.8 | 52  | 9.3 | 1.82 | 5.83  | 18055 | 1141  | 3569  | 8.4 | 20.3 |
| 2288.0 | 3.6  | 37.9 | 59  | 9.3 | 1.86 | 6.11  | 19032 | 1519  | 3479  | 8.4 | 20.3 |
| 2289.0 | 3.7  | 45.5 | 51  | 9.3 | 1.92 | 6.39  | 19871 | 1498  | 3396  | 8.4 | 20.3 |
| 2290.0 | 4.3  | 43.1 | 58  | 9.3 | 1.87 | 6.62  | 20678 | 1267  | 3311  | 8.4 | 20.3 |
| 2291.0 | 4.6  | 43.5 | 58  | 9.3 | 1.86 | 6.84  | 21446 | 1203  | 3229  | 8.4 | 20.4 |
| 2292.0 | 8.6  | 43.8 | 57  | 9.3 | 1.63 | 6.95  | 21840 | 634   | 3133  | 8.4 | 20.4 |
| 2293.0 | 9.9  | 29.9 | 48  | 9.3 | 1.36 | 7.05  | 22129 | 555   | 3040  | 8.4 | 20.4 |
| 2294.0 | 12.9 | 32.5 | 55  | 9.3 | 1.36 | 7.13  | 22386 | 423   | 2950  | 8.4 | 20.4 |
| 2295.0 | 8.3  | 38.7 | 55  | 9.3 | 1.57 | 7.25  | 22782 | 660   | 2873  | 8.4 | 20.4 |
| 2296.0 | 10.8 | 41.0 | 51  | 9.2 | 1.51 | 7.34  | 23067 | 506   | 2797  | 8.4 | 20.4 |
| 2297.0 | 15.3 | 40.0 | 44  | 9.2 | 1.33 | 7.41  | 23240 | 357   | 2720  | 8.4 | 20.4 |
| 2298.0 | 9.1  | 38.0 | 55  | 9.2 | 1.55 | 7.52  | 23600 | 604   | 2656  | 8.4 | 20.4 |
| 2299.0 | 4.6  | 41.5 | 54  | 9.2 | 1.82 | 7.74  | 24306 | 1189  | 2613  | 8.4 | 20.4 |
| 2300.0 | 3.7  | 40.2 | 56  | 9.2 | 1.89 | 8.00  | 25206 | 1466  | 2580  | 8.4 | 20.4 |
| 2301.0 | 7.1  | 40.5 | 54  | 9.2 | 1.66 | 8.14  | 25662 | 767   | 2529  | 8.4 | 20.4 |
| 2302.0 | 9.2  | 38.4 | 55  | 9.2 | 1.55 | 8.25  | 26020 | 598   | 2477  | 8.4 | 20.4 |
| 2303.0 | 12.7 | 38.4 | 53  | 9.2 | 1.43 | 8.33  | 26268 | 430   | 2423  | 8.4 | 20.4 |
| 2304.0 | 15.4 | 38.6 | 46  | 9.2 | 1.33 | 8.40  | 26447 | 356   | 2370  | 8.4 | 20.4 |
| 2305.0 | 8.4  | 39.6 | 62  | 9.2 | 1.64 | 8.52  | 26885 | 649   | 2327  | 8.4 | 20.4 |
| 2306.0 | 3.2  | 39.0 | 48  | 9.2 | 1.87 | 8.83  | 27791 | 1716  | 2312  | 8.4 | 20.4 |
| 2307.0 | 4.0  | 39.2 | 50  | 9.2 | 1.81 | 9.08  | 28544 | 1372  | 2289  | 8.4 | 20.4 |
| 2308.0 | 4.1  | 40.0 | 48  | 9.2 | 1.80 | 9.32  | 29250 | 1335  | 2267  | 8.4 | 20.4 |

| DEPTH  | ROP  | WOR  | RPM | MW  | "d"r | HOURS | TURNS | ICOST | CCOST | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|-------|-------|-----|------|
| 2309.0 | 4.7  | 43.8 | 60  | 9.2 | 1.88 | 9.54  | 30013 | 1168  | 2242  | 8.4 | 20.4 |
| 2310.0 | 6.7  | 46.1 | 45  | 9.2 | 1.68 | 9.69  | 30411 | 814   | 2210  | 8.4 | 20.4 |
| 2311.0 | 16.4 | 47.5 | 64  | 9.2 | 1.51 | 9.75  | 30646 | 333   | 2169  | 8.4 | 20.4 |
| 2312.0 | 12.2 | 46.4 | 68  | 9.2 | 1.63 | 9.83  | 30981 | 449   | 2133  | 8.4 | 20.4 |
| 2313.0 | 3.9  | 49.0 | 54  | 9.2 | 1.98 | 10.08 | 31811 | 1393  | 2117  | 8.4 | 20.4 |
| 2314.0 | 3.9  | 48.0 | 52  | 9.2 | 1.95 | 10.34 | 32596 | 1387  | 2102  | 8.4 | 20.4 |
| 2315.0 | 5.1  | 47.8 | 54  | 9.2 | 1.87 | 10.53 | 33239 | 1083  | 2082  | 8.4 | 20.4 |
| 2316.0 | 3.0  | 44.5 | 56  | 9.2 | 2.02 | 10.86 | 34346 | 1801  | 2076  | 8.4 | 20.4 |
| 2317.0 | 4.4  | 42.4 | 48  | 9.2 | 1.81 | 11.09 | 35007 | 1244  | 2060  | 8.4 | 20.4 |
| 2318.0 | 4.5  | 42.7 | 49  | 9.2 | 1.82 | 11.31 | 35670 | 1229  | 2045  | 8.4 | 20.4 |
| 2319.0 | 4.8  | 41.2 | 53  | 9.2 | 1.79 | 11.52 | 36325 | 1138  | 2028  | 8.4 | 20.4 |
| 2320.0 | 7.4  | 40.6 | 61  | 9.2 | 1.69 | 11.66 | 36821 | 741   | 2004  | 8.4 | 20.4 |
| 2321.0 | 5.7  | 41.8 | 63  | 9.2 | 1.81 | 11.83 | 37483 | 961   | 1986  | 8.4 | 20.4 |
| 2322.0 | 6.2  | 41.9 | 66  | 9.2 | 1.80 | 11.99 | 38125 | 884   | 1966  | 8.4 | 20.4 |
| 2323.0 | 5.0  | 41.2 | 57  | 9.2 | 1.81 | 12.20 | 38815 | 1103  | 1951  | 8.4 | 20.4 |
| 2324.0 | 4.9  | 43.4 | 53  | 9.2 | 1.82 | 12.40 | 39462 | 1107  | 1937  | 8.4 | 20.4 |
| 2325.0 | 4.4  | 44.9 | 53  | 9.2 | 1.88 | 12.62 | 40182 | 1235  | 1925  | 8.4 | 20.4 |
| 2326.0 | 5.2  | 44.5 | 55  | 9.2 | 1.83 | 12.81 | 40815 | 1045  | 1911  | 8.4 | 20.4 |
| 2327.0 | 5.9  | 43.7 | 55  | 9.2 | 1.77 | 12.99 | 41376 | 934   | 1895  | 8.4 | 20.4 |
| 2328.0 | 6.9  | 42.1 | 51  | 9.2 | 1.68 | 13.13 | 41825 | 795   | 1878  | 8.4 | 20.4 |
| 2329.0 | 4.9  | 41.2 | 49  | 9.2 | 1.76 | 13.33 | 42423 | 1118  | 1866  | 8.4 | 20.4 |
| 2330.0 | 6.7  | 39.4 | 52  | 9.2 | 1.66 | 13.48 | 42893 | 821   | 1850  | 8.4 | 20.4 |
| 2331.0 | 6.5  | 40.5 | 52  | 9.2 | 1.68 | 13.64 | 43376 | 849   | 1834  | 8.4 | 20.4 |
| 2332.0 | 4.1  | 38.5 | 56  | 9.2 | 1.83 | 13.88 | 44187 | 1322  | 1827  | 8.4 | 20.4 |
| 2333.0 | 4.4  | 39.3 | 53  | 9.2 | 1.81 | 14.11 | 44919 | 1256  | 1818  | 8.4 | 20.4 |
| 2334.0 | 7.0  | 36.5 | 53  | 9.2 | 1.61 | 14.25 | 45376 | 779   | 1803  | 8.4 | 20.4 |
| 2335.0 | 5.5  | 40.5 | 55  | 9.2 | 1.76 | 14.44 | 45978 | 1004  | 1792  | 8.4 | 20.4 |
| 2336.0 | 5.7  | 40.5 | 56  | 9.2 | 1.74 | 14.61 | 46562 | 958   | 1780  | 8.4 | 20.4 |
| 2337.0 | 5.9  | 40.5 | 55  | 9.2 | 1.73 | 14.78 | 47126 | 926   | 1768  | 8.4 | 20.4 |
| 2338.0 | 4.1  | 40.1 | 51  | 9.2 | 1.82 | 15.02 | 47870 | 1320  | 1762  | 8.4 | 20.4 |
| 2339.0 | 6.7  | 38.8 | 62  | 9.2 | 1.71 | 15.17 | 48424 | 814   | 1749  | 8.4 | 20.4 |
| 2340.0 | 6.3  | 41.5 | 63  | 9.2 | 1.77 | 15.33 | 49021 | 867   | 1737  | 8.4 | 20.4 |
| 2341.0 | 4.7  | 42.1 | 48  | 9.2 | 1.79 | 15.54 | 49640 | 1166  | 1730  | 8.4 | 20.4 |
| 2342.0 | 3.9  | 41.6 | 43  | 9.2 | 1.80 | 15.80 | 50302 | 1410  | 1726  | 8.4 | 20.4 |
| 2343.0 | 3.3  | 42.2 | 42  | 9.2 | 1.86 | 16.10 | 51066 | 1658  | 1725  | 8.4 | 20.4 |
| 2344.0 | 3.5  | 44.0 | 44  | 9.2 | 1.88 | 16.38 | 51811 | 1547  | 1723  | 8.4 | 20.4 |
| 2345.0 | 3.4  | 42.5 | 41  | 9.2 | 1.84 | 16.68 | 52528 | 1597  | 1721  | 8.4 | 20.4 |
| 2346.0 | 3.1  | 39.5 | 36  | 9.2 | 1.80 | 17.00 | 53233 | 1782  | 1722  | 8.4 | 20.4 |
| 2347.0 | 3.7  | 43.5 | 47  | 9.2 | 1.88 | 17.28 | 54000 | 1500  | 1719  | 8.4 | 20.4 |
| 2348.0 | 4.1  | 42.2 | 52  | 9.2 | 1.86 | 17.52 | 54766 | 1336  | 1714  | 8.4 | 20.4 |
| 2349.0 | 3.5  | 41.2 | 51  | 9.2 | 1.89 | 17.80 | 55643 | 1559  | 1713  | 8.4 | 20.4 |
| 2350.0 | 4.2  | 41.7 | 54  | 9.2 | 1.86 | 18.04 | 56420 | 1319  | 1708  | 8.4 | 20.4 |
| 2351.0 | 5.9  | 42.3 | 53  | 9.2 | 1.74 | 18.21 | 56958 | 929   | 1699  | 8.4 | 20.4 |
| 2352.0 | 8.8  | 43.4 | 49  | 9.2 | 1.59 | 18.33 | 57293 | 621   | 1686  | 8.4 | 20.4 |
| 2353.0 | 9.5  | 42.9 | 54  | 9.2 | 1.59 | 18.43 | 57636 | 575   | 1674  | 8.4 | 20.4 |
| 2354.0 | 7.2  | 44.1 | 54  | 9.2 | 1.70 | 18.57 | 58088 | 760   | 1664  | 8.4 | 20.4 |
| 2355.0 | 4.8  | 42.3 | 53  | 9.2 | 1.81 | 18.78 | 58745 | 1135  | 1658  | 8.4 | 20.4 |
| 2356.0 | 5.2  | 43.3 | 52  | 9.2 | 1.79 | 18.97 | 59343 | 1043  | 1651  | 8.4 | 20.4 |
| 2357.0 | 5.8  | 42.9 | 54  | 9.1 | 1.78 | 19.14 | 59905 | 946   | 1643  | 8.4 | 20.4 |
| 2358.0 | 5.6  | 37.8 | 51  | 9.1 | 1.70 | 19.32 | 60446 | 970   | 1636  | 8.4 | 20.4 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST | CCOST | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|-------|-------|-----|------|
| 2359.0 | 3.7  | 39.7 | 49  | 9.1 | 1.86 | 19.59 | 61246 | 1497  | 1634  | 8.4 | 20.4 |
| 2360.0 | 4.0  | 42.1 | 47  | 9.1 | 1.85 | 19.84 | 61954 | 1360  | 1632  | 8.4 | 20.4 |
| 2361.0 | 4.0  | 40.9 | 47  | 9.1 | 1.84 | 20.09 | 62660 | 1364  | 1629  | 8.4 | 20.4 |
| 2362.0 | 4.1  | 42.0 | 50  | 9.1 | 1.86 | 20.33 | 63382 | 1329  | 1626  | 8.4 | 20.4 |
| 2363.0 | 4.0  | 42.3 | 47  | 9.2 | 1.83 | 20.58 | 64080 | 1361  | 1623  | 8.4 | 20.4 |
| 2364.0 | 4.4  | 43.1 | 51  | 9.2 | 1.84 | 20.81 | 64774 | 1239  | 1619  | 8.4 | 20.4 |
| 2365.0 | 7.0  | 43.8 | 49  | 9.2 | 1.68 | 20.95 | 65194 | 777   | 1611  | 8.4 | 20.5 |
| 2366.0 | 9.4  | 42.3 | 47  | 9.2 | 1.54 | 21.06 | 65491 | 579   | 1600  | 8.4 | 20.5 |
| 2367.0 | 12.6 | 41.2 | 47  | 9.2 | 1.43 | 21.14 | 65713 | 433   | 1589  | 8.4 | 20.5 |
| 2368.0 | 17.1 | 37.0 | 43  | 9.2 | 1.26 | 21.19 | 65865 | 321   | 1577  | 8.4 | 20.5 |
| 2369.0 | 10.1 | 37.3 | 56  | 9.2 | 1.52 | 21.29 | 66197 | 543   | 1567  | 8.4 | 20.5 |
| 2370.0 | 3.3  | 41.6 | 56  | 9.2 | 1.95 | 21.60 | 67205 | 1655  | 1568  | 8.4 | 20.5 |
| 2371.0 | 4.4  | 44.2 | 48  | 9.2 | 1.84 | 21.82 | 67866 | 1244  | 1565  | 8.4 | 20.5 |
| 2372.0 | 4.7  | 45.2 | 49  | 9.2 | 1.83 | 22.03 | 68491 | 1163  | 1561  | 8.4 | 20.5 |
| 2373.0 | 3.7  | 42.7 | 49  | 9.2 | 1.88 | 22.30 | 69278 | 1477  | 1560  | 8.4 | 20.5 |
| 2374.0 | 3.3  | 42.8 | 51  | 9.2 | 1.93 | 22.60 | 70203 | 1644  | 1561  | 8.4 | 20.5 |
| 2375.0 | 2.7  | 42.2 | 50  | 9.2 | 1.99 | 22.98 | 71310 | 2032  | 1565  | 8.4 | 20.5 |
| 2376.0 | 4.4  | 41.0 | 51  | 9.2 | 1.80 | 23.20 | 71993 | 1230  | 1562  | 8.4 | 20.5 |
| 2377.0 | 8.4  | 44.7 | 54  | 9.2 | 1.66 | 23.32 | 72380 | 652   | 1554  | 8.4 | 20.5 |
| 2378.0 | 7.0  | 42.6 | 55  | 9.2 | 1.70 | 23.46 | 72851 | 786   | 1547  | 8.4 | 20.5 |
| 2379.0 | 9.9  | 41.8 | 52  | 9.2 | 1.55 | 23.56 | 73166 | 552   | 1538  | 8.4 | 20.5 |
| 2380.0 | 10.6 | 42.0 | 54  | 9.2 | 1.55 | 23.66 | 73474 | 517   | 1529  | 8.4 | 20.5 |
| 2381.0 | 10.5 | 33.8 | 53  | 9.2 | 1.44 | 23.75 | 73777 | 520   | 1521  | 8.4 | 20.5 |
| 2382.0 | 9.1  | 37.1 | 55  | 9.2 | 1.55 | 23.86 | 74142 | 601   | 1513  | 8.4 | 20.5 |
| 2383.0 | 6.2  | 38.5 | 56  | 9.2 | 1.69 | 24.03 | 74686 | 887   | 1508  | 8.4 | 20.5 |
| 2384.0 | 4.1  | 38.5 | 60  | 9.2 | 1.86 | 24.27 | 75571 | 1335  | 1506  | 8.5 | 20.4 |
| 2385.0 | 4.3  | 42.0 | 59  | 9.2 | 1.88 | 24.50 | 76394 | 1281  | 1504  | 8.5 | 20.5 |
| 2386.0 | 4.7  | 37.8 | 54  | 9.2 | 1.76 | 24.71 | 77076 | 1153  | 1501  | 8.5 | 20.5 |
| 2387.0 | 3.8  | 41.5 | 54  | 9.2 | 1.89 | 24.98 | 77928 | 1451  | 1501  | 8.5 | 20.5 |
| 2388.0 | 5.0  | 40.6 | 50  | 9.2 | 1.75 | 25.18 | 78525 | 1097  | 1498  | 8.5 | 20.5 |
| 2389.0 | 5.4  | 42.1 | 51  | 9.2 | 1.76 | 25.37 | 79095 | 1022  | 1494  | 8.5 | 20.5 |
| 2390.0 | 4.2  | 43.4 | 50  | 9.2 | 1.85 | 25.60 | 79814 | 1303  | 1492  | 8.5 | 20.5 |
| 2391.0 | 7.2  | 41.1 | 50  | 9.2 | 1.64 | 25.74 | 80229 | 756   | 1486  | 8.5 | 20.5 |
| 2392.0 | 3.6  | 41.0 | 51  | 9.2 | 1.88 | 26.02 | 81083 | 1525  | 1487  | 8.5 | 20.5 |
| 2393.0 | 3.7  | 40.7 | 52  | 9.2 | 1.87 | 26.29 | 81918 | 1477  | 1487  | 8.5 | 20.5 |
| 2394.0 | 8.8  | 34.2 | 59  | 9.2 | 1.54 | 26.40 | 82318 | 624   | 1480  | 8.5 | 20.5 |
| 2395.0 | 6.7  | 34.4 | 60  | 9.2 | 1.64 | 26.55 | 82857 | 818   | 1475  | 8.5 | 20.5 |
| 2396.0 | 5.0  | 40.8 | 59  | 9.2 | 1.81 | 26.75 | 83563 | 1087  | 1472  | 8.5 | 20.5 |
| 2397.0 | 5.2  | 41.8 | 56  | 9.2 | 1.80 | 26.95 | 84212 | 1063  | 1469  | 8.5 | 20.5 |
| 2398.0 | 3.2  | 40.3 | 51  | 9.2 | 1.91 | 27.25 | 85160 | 1687  | 1470  | 8.5 | 20.5 |
| 2399.0 | 7.4  | 36.7 | 51  | 9.2 | 1.58 | 27.39 | 85573 | 739   | 1465  | 8.5 | 20.5 |
| 2400.0 | 10.7 | 25.3 | 50  | 9.2 | 1.31 | 27.48 | 85853 | 511   | 1458  | 8.5 | 20.5 |
| 2401.0 | 5.8  | 39.1 | 53  | 9.2 | 1.70 | 27.66 | 86399 | 946   | 1454  | 8.5 | 20.5 |
| 2402.0 | 5.8  | 40.3 | 49  | 9.2 | 1.70 | 27.83 | 86909 | 943   | 1450  | 8.5 | 20.5 |
| 2403.0 | 8.4  | 38.9 | 56  | 9.2 | 1.59 | 27.95 | 87305 | 649   | 1445  | 8.5 | 20.5 |
| 2404.0 | 4.4  | 40.2 | 58  | 9.1 | 1.86 | 28.17 | 88093 | 1247  | 1443  | 8.5 | 20.5 |
| 2405.0 | 5.8  | 38.5 | 54  | 9.1 | 1.72 | 28.35 | 88654 | 943   | 1440  | 8.5 | 20.5 |
| 2406.0 | 4.0  | 40.0 | 55  | 9.1 | 1.87 | 28.60 | 89479 | 1369  | 1439  | 8.5 | 20.5 |
| 2407.0 | 4.6  | 45.5 | 57  | 9.1 | 1.92 | 28.82 | 90233 | 1201  | 1437  | 8.5 | 20.5 |
| 2408.0 | 4.9  | 44.8 | 56  | 9.1 | 1.88 | 29.02 | 90924 | 1119  | 1435  | 8.5 | 20.5 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS  | ICOST | CCOST | PP  | FG   |
|--------|------|------|-----|-----|------|-------|--------|-------|-------|-----|------|
| 2409.0 | 3.8  | 46.9 | 55  | 9.1 | 1.99 | 29.28 | 91792  | 1442  | 1435  | 8.5 | 20.5 |
| 2410.0 | 4.3  | 45.3 | 58  | 9.1 | 1.94 | 29.52 | 92604  | 1278  | 1434  | 8.5 | 20.5 |
| 2411.0 | 6.4  | 41.5 | 67  | 9.1 | 1.80 | 29.67 | 93229  | 858   | 1430  | 8.5 | 20.5 |
| 2412.0 | 6.3  | 36.7 | 57  | 9.1 | 1.69 | 29.83 | 93771  | 873   | 1426  | 8.5 | 20.5 |
| 2413.0 | 6.8  | 38.0 | 57  | 9.1 | 1.68 | 29.98 | 94276  | 801   | 1422  | 8.5 | 20.5 |
| 2414.0 | 11.1 | 35.3 | 49  | 9.1 | 1.44 | 30.07 | 94541  | 494   | 1416  | 8.5 | 20.5 |
| 2415.0 | 3.1  | 42.1 | 54  | 9.1 | 1.99 | 30.39 | 95592  | 1779  | 1418  | 8.5 | 20.5 |
| 2416.0 | 6.7  | 42.4 | 55  | 9.1 | 1.73 | 30.54 | 96087  | 818   | 1414  | 8.5 | 20.5 |
| 2417.0 | 2.3  | 43.5 | 53  | 9.1 | 2.10 | 30.98 | 97463  | 2362  | 1421  | 8.5 | 20.5 |
| 2418.0 | 2.9  | 45.1 | 62  | 9.1 | 2.11 | 31.32 | 98756  | 1889  | 1424  | 8.5 | 20.5 |
| 2419.0 | 2.4  | 44.1 | 58  | 9.1 | 2.13 | 31.73 | 100188 | 2248  | 1429  | 8.5 | 20.5 |
| 2420.0 | 2.2  | 41.5 | 49  | 9.2 | 2.04 | 32.19 | 101524 | 2494  | 1436  | 8.5 | 20.5 |
| 2421.0 | 5.5  | 42.6 | 49  | 9.2 | 1.74 | 32.37 | 102059 | 1004  | 1433  | 8.5 | 20.5 |
| 2422.0 | 10.7 | 39.6 | 61  | 9.2 | 1.55 | 32.46 | 102398 | 511   | 1427  | 8.5 | 20.5 |
| 2423.0 | 17.1 | 38.8 | 65  | 9.2 | 1.41 | 32.52 | 102628 | 321   | 1420  | 8.5 | 20.5 |
| 2424.0 | 8.4  | 40.5 | 61  | 9.2 | 1.64 | 32.64 | 103061 | 652   | 1415  | 8.6 | 20.5 |
| 2425.0 | 5.3  | 42.6 | 62  | 9.2 | 1.84 | 32.83 | 103762 | 1034  | 1413  | 8.6 | 20.5 |
| 2426.0 | 7.3  | 41.2 | 77  | 9.2 | 1.79 | 32.97 | 104401 | 754   | 1409  | 8.6 | 20.5 |
| 2427.0 | 12.6 | 41.3 | 81  | 9.2 | 1.61 | 33.05 | 104785 | 433   | 1403  | 8.6 | 20.5 |
| 2428.0 | 8.9  | 41.0 | 71  | 9.2 | 1.69 | 33.16 | 105264 | 616   | 1398  | 8.6 | 20.5 |
| 2429.0 | 2.8  | 42.0 | 55  | 9.2 | 2.01 | 33.52 | 106455 | 1985  | 1402  | 8.6 | 20.5 |
| 2430.0 | 2.6  | 42.5 | 53  | 9.2 | 2.02 | 33.91 | 107677 | 2114  | 1406  | 8.6 | 20.5 |
| 2431.0 | 4.4  | 40.8 | 55  | 9.2 | 1.83 | 34.13 | 108429 | 1244  | 1405  | 8.6 | 20.5 |
| 2432.0 | 4.9  | 39.7 | 56  | 9.2 | 1.79 | 34.34 | 109121 | 1122  | 1403  | 8.6 | 20.5 |
| 2433.0 | 2.0  | 38.3 | 63  | 9.2 | 2.11 | 34.84 | 111016 | 2753  | 1411  | 8.6 | 20.5 |
| 2434.0 | 2.2  | 38.8 | 58  | 9.2 | 2.05 | 35.30 | 112601 | 2480  | 1418  | 8.6 | 20.5 |
| 2435.0 | 6.6  | 39.6 | 74  | 9.2 | 1.78 | 35.45 | 113270 | 824   | 1414  | 8.6 | 20.5 |
| 2436.0 | 5.6  | 40.3 | 59  | 9.2 | 1.77 | 35.63 | 113903 | 979   | 1412  | 8.6 | 20.5 |
| 2437.0 | 5.5  | 40.2 | 65  | 9.2 | 1.81 | 35.81 | 114615 | 1002  | 1409  | 8.6 | 20.5 |
| 2438.0 | 6.8  | 37.6 | 48  | 9.2 | 1.60 | 35.96 | 115040 | 809   | 1406  | 8.6 | 20.5 |
| 2439.0 | 3.1  | 33.1 | 59  | 9.2 | 1.85 | 36.28 | 116178 | 1749  | 1408  | 8.6 | 20.5 |
| 2440.0 | 5.2  | 33.9 | 60  | 9.2 | 1.71 | 36.47 | 116869 | 1055  | 1406  | 8.6 | 20.5 |
| 2441.0 | 5.8  | 35.7 | 59  | 9.2 | 1.70 | 36.64 | 117488 | 949   | 1403  | 8.6 | 20.5 |
| 2442.0 | 4.5  | 34.4 | 57  | 9.2 | 1.75 | 36.86 | 118248 | 1220  | 1402  | 8.6 | 20.5 |
| 2443.0 | 8.8  | 36.9 | 47  | 9.2 | 1.50 | 36.98 | 118568 | 621   | 1398  | 8.6 | 20.5 |
| 2444.0 | 6.8  | 37.8 | 53  | 9.2 | 1.64 | 37.12 | 119039 | 806   | 1394  | 8.6 | 20.5 |
| 2445.0 | 3.7  | 37.7 | 59  | 9.2 | 1.87 | 37.40 | 120001 | 1483  | 1395  | 8.6 | 20.5 |
| 2446.0 | 2.4  | 39.1 | 59  | 9.2 | 2.03 | 37.81 | 121462 | 2275  | 1400  | 8.6 | 20.5 |
| 2447.0 | 2.5  | 39.4 | 57  | 9.2 | 2.01 | 38.21 | 122821 | 2160  | 1404  | 8.6 | 20.5 |
| 2448.0 | 2.3  | 37.1 | 56  | 9.2 | 2.00 | 38.64 | 124285 | 2374  | 1409  | 8.6 | 20.5 |
| 2449.0 | 6.6  | 31.5 | 55  | 9.2 | 1.57 | 38.79 | 124780 | 827   | 1406  | 8.6 | 20.5 |
| 2450.0 | 10.3 | 23.6 | 48  | 9.2 | 1.28 | 38.89 | 125062 | 529   | 1401  | 8.6 | 20.5 |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 10      | IADC CODE   | 517    | INTERVAL  | 2450.0- 2678.0 |
| HTC J22     |         | SIZE        | 12.250 | NOZZLES   | 15 15 16       |
| COST        | 6788.00 | TRIP TIME   | 7.3    | BIT RUN   | 228.0          |
| TOTAL HOURS | 50.23   | TOTAL TURNS | 192705 | CONDITION | T6 B4 G0.250   |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST | CCOST | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|-------|-------|-----|------|
| 2451.0 | 22.7 | 31.2 | 36  | 9.6 | 1.00 | 0.04  | 94    | 242   | 46997 | 8.6 | 20.5 |
| 2452.0 | 14.6 | 40.9 | 57  | 9.6 | 1.38 | 0.11  | 327   | 376   | 23686 | 8.6 | 20.5 |
| 2453.0 | 12.1 | 47.1 | 65  | 9.6 | 1.55 | 0.20  | 648   | 453   | 15942 | 8.6 | 20.5 |
| 2454.0 | 10.0 | 45.4 | 57  | 9.6 | 1.55 | 0.30  | 990   | 549   | 12094 | 8.6 | 20.5 |
| 2455.0 | 10.2 | 47.7 | 55  | 9.6 | 1.56 | 0.39  | 1311  | 535   | 9782  | 8.6 | 20.5 |
| 2456.0 | 8.8  | 48.0 | 62  | 9.6 | 1.66 | 0.51  | 1736  | 622   | 8255  | 8.6 | 20.5 |
| 2457.0 | 8.1  | 47.8 | 77  | 9.6 | 1.76 | 0.63  | 2311  | 678   | 7173  | 8.6 | 20.5 |
| 2458.0 | 8.7  | 46.0 | 71  | 9.6 | 1.68 | 0.75  | 2804  | 633   | 6355  | 8.6 | 20.5 |
| 2459.0 | 7.7  | 46.1 | 79  | 9.6 | 1.76 | 0.88  | 3418  | 709   | 5728  | 8.6 | 20.5 |
| 2460.0 | 12.2 | 46.4 | 73  | 9.6 | 1.58 | 0.96  | 3775  | 447   | 5200  | 8.6 | 20.5 |
| 2461.0 | 9.8  | 45.2 | 55  | 9.6 | 1.54 | 1.06  | 4109  | 558   | 4778  | 8.6 | 20.5 |
| 2462.0 | 9.4  | 43.6 | 70  | 9.6 | 1.62 | 1.17  | 4558  | 584   | 4428  | 8.6 | 20.5 |
| 2463.0 | 7.9  | 37.5 | 65  | 9.6 | 1.58 | 1.29  | 5053  | 695   | 4141  | 8.6 | 20.5 |
| 2464.0 | 8.8  | 39.0 | 65  | 9.6 | 1.57 | 1.41  | 5498  | 625   | 3890  | 8.6 | 20.5 |
| 2465.0 | 13.6 | 41.0 | 65  | 9.6 | 1.45 | 1.48  | 5785  | 403   | 3658  | 8.6 | 20.5 |
| 2466.0 | 11.3 | 41.4 | 65  | 9.6 | 1.51 | 1.57  | 6130  | 484   | 3459  | 8.6 | 20.5 |
| 2467.0 | 10.7 | 42.0 | 65  | 9.6 | 1.54 | 1.66  | 6493  | 509   | 3286  | 8.6 | 20.5 |
| 2468.0 | 10.3 | 42.9 | 65  | 9.6 | 1.56 | 1.76  | 6870  | 529   | 3133  | 8.6 | 20.5 |
| 2469.0 | 6.1  | 42.9 | 65  | 9.6 | 1.73 | 1.92  | 7505  | 893   | 3015  | 8.6 | 20.5 |
| 2470.0 | 8.5  | 42.1 | 65  | 9.6 | 1.62 | 2.04  | 7967  | 648   | 2896  | 8.6 | 20.5 |
| 2471.0 | 8.7  | 43.2 | 65  | 9.6 | 1.62 | 2.16  | 8414  | 628   | 2788  | 8.6 | 20.5 |
| 2472.0 | 7.9  | 43.2 | 74  | 9.6 | 1.69 | 2.28  | 8979  | 697   | 2693  | 8.6 | 20.5 |
| 2473.0 | 10.8 | 40.1 | 66  | 9.6 | 1.52 | 2.37  | 9342  | 506   | 2598  | 8.6 | 20.5 |
| 2474.0 | 10.7 | 40.0 | 61  | 9.6 | 1.49 | 2.47  | 9681  | 509   | 2511  | 8.6 | 20.5 |
| 2475.0 | 9.6  | 41.2 | 69  | 9.6 | 1.58 | 2.57  | 10113 | 569   | 2433  | 8.6 | 20.5 |
| 2476.0 | 8.7  | 42.1 | 80  | 9.6 | 1.67 | 2.69  | 10665 | 627   | 2364  | 8.6 | 20.5 |
| 2477.0 | 8.1  | 41.8 | 83  | 9.6 | 1.71 | 2.81  | 11281 | 680   | 2302  | 8.6 | 20.5 |
| 2478.0 | 9.8  | 40.1 | 71  | 9.6 | 1.57 | 2.91  | 11716 | 557   | 2239  | 8.6 | 20.5 |
| 2479.0 | 8.7  | 42.5 | 75  | 9.6 | 1.66 | 3.03  | 12231 | 630   | 2184  | 8.6 | 20.5 |
| 2480.0 | 7.6  | 43.3 | 72  | 9.6 | 1.70 | 3.16  | 12795 | 716   | 2135  | 8.6 | 20.5 |
| 2481.0 | 7.7  | 44.9 | 63  | 9.6 | 1.67 | 3.29  | 13286 | 707   | 2089  | 8.6 | 20.5 |
| 2482.0 | 6.1  | 47.6 | 67  | 9.6 | 1.80 | 3.45  | 13943 | 900   | 2052  | 8.6 | 20.5 |
| 2483.0 | 4.4  | 46.4 | 66  | 9.6 | 1.89 | 3.68  | 14848 | 1250  | 2027  | 8.6 | 20.6 |
| 2484.0 | 4.1  | 51.0 | 71  | 9.6 | 2.00 | 3.92  | 15883 | 1328  | 2007  | 8.6 | 20.6 |
| 2485.0 | 5.1  | 51.6 | 71  | 9.6 | 1.93 | 4.12  | 16717 | 1065  | 1980  | 8.6 | 20.6 |
| 2486.0 | 4.5  | 52.0 | 75  | 9.6 | 2.00 | 4.34  | 17715 | 1208  | 1958  | 8.6 | 20.6 |
| 2487.0 | 6.0  | 52.0 | 76  | 9.6 | 1.90 | 4.50  | 18469 | 911   | 1930  | 8.6 | 20.6 |
| 2488.0 | 11.1 | 48.2 | 65  | 9.6 | 1.59 | 4.59  | 18819 | 491   | 1892  | 8.6 | 20.6 |
| 2489.0 | 10.1 | 48.4 | 69  | 9.6 | 1.65 | 4.69  | 19227 | 540   | 1858  | 8.6 | 20.6 |
| 2490.0 | 8.3  | 51.1 | 81  | 9.6 | 1.80 | 4.81  | 19813 | 663   | 1828  | 8.6 | 20.6 |
| 2491.0 | 8.0  | 51.3 | 84  | 9.6 | 1.83 | 4.94  | 20443 | 681   | 1800  | 8.6 | 20.6 |
| 2492.0 | 15.6 | 49.6 | 82  | 9.6 | 1.57 | 5.00  | 20761 | 351   | 1765  | 8.6 | 20.6 |
| 2493.0 | 8.9  | 51.6 | 82  | 9.6 | 1.79 | 5.11  | 21315 | 616   | 1739  | 8.6 | 20.6 |



| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | URNS  | ICOST | CCOST | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|-------|-------|-----|------|
| 2494.0 | 4.6  | 55.9 | 77  | 9.6 | 2.06 | 5.33  | 22328 | 1200  | 1726  | 8.6 | 20.6 |
| 2495.0 | 5.0  | 54.0 | 81  | 9.5 | 2.04 | 5.54  | 23303 | 1104  | 1712  | 8.6 | 20.6 |
| 2496.0 | 8.1  | 55.3 | 79  | 9.5 | 1.87 | 5.66  | 23892 | 677   | 1690  | 8.6 | 20.6 |
| 2497.0 | 7.3  | 56.7 | 76  | 9.5 | 1.91 | 5.80  | 24519 | 753   | 1670  | 8.6 | 20.6 |
| 2498.0 | 6.8  | 55.7 | 79  | 9.5 | 1.94 | 5.94  | 25219 | 808   | 1652  | 8.6 | 20.6 |
| 2499.0 | 5.8  | 54.5 | 79  | 9.5 | 1.98 | 6.12  | 26032 | 941   | 1638  | 8.6 | 20.6 |
| 2500.0 | 7.2  | 51.8 | 80  | 9.5 | 1.87 | 6.25  | 26694 | 757   | 1620  | 8.6 | 20.6 |
| 2501.0 | 6.0  | 51.0 | 73  | 9.5 | 1.90 | 6.42  | 27422 | 908   | 1606  | 8.6 | 20.6 |
| 2502.0 | 7.0  | 50.2 | 52  | 9.5 | 1.72 | 6.56  | 27868 | 780   | 1590  | 8.6 | 20.6 |
| 2503.0 | 8.6  | 46.6 | 59  | 9.5 | 1.65 | 6.68  | 28280 | 636   | 1572  | 8.6 | 20.6 |
| 2504.0 | 5.9  | 46.8 | 68  | 9.5 | 1.83 | 6.85  | 28968 | 925   | 1560  | 8.6 | 20.6 |
| 2505.0 | 6.4  | 44.3 | 70  | 9.5 | 1.78 | 7.00  | 29628 | 859   | 1547  | 8.6 | 20.6 |
| 2506.0 | 8.9  | 43.2 | 69  | 9.5 | 1.65 | 7.12  | 30095 | 614   | 1531  | 8.6 | 20.6 |
| 2507.0 | 8.4  | 41.7 | 69  | 9.5 | 1.65 | 7.24  | 30594 | 655   | 1515  | 8.6 | 20.6 |
| 2508.0 | 7.7  | 41.0 | 70  | 9.5 | 1.67 | 7.37  | 31139 | 712   | 1501  | 8.6 | 20.6 |
| 2509.0 | 4.4  | 41.1 | 71  | 9.5 | 1.86 | 7.59  | 32104 | 1233  | 1497  | 8.6 | 20.6 |
| 2510.0 | 4.0  | 41.8 | 71  | 9.5 | 1.90 | 7.84  | 33159 | 1352  | 1495  | 8.6 | 20.6 |
| 2511.0 | 3.2  | 43.4 | 72  | 9.5 | 2.01 | 8.15  | 34506 | 1700  | 1498  | 8.6 | 20.6 |
| 2512.0 | 5.6  | 41.7 | 71  | 9.5 | 1.79 | 8.33  | 35267 | 984   | 1490  | 8.6 | 20.6 |
| 2513.0 | 3.3  | 45.4 | 68  | 9.5 | 2.01 | 8.63  | 36505 | 1659  | 1492  | 8.6 | 20.6 |
| 2514.0 | 4.5  | 46.6 | 69  | 9.5 | 1.92 | 8.85  | 37422 | 1209  | 1488  | 8.6 | 20.6 |
| 2515.0 | 9.3  | 47.3 | 69  | 9.4 | 1.70 | 8.96  | 37867 | 587   | 1474  | 8.6 | 20.6 |
| 2516.0 | 11.6 | 47.4 | 69  | 9.4 | 1.63 | 9.05  | 38224 | 473   | 1459  | 8.6 | 20.6 |
| 2517.0 | 12.6 | 46.8 | 69  | 9.4 | 1.59 | 9.13  | 38551 | 435   | 1444  | 8.6 | 20.6 |
| 2518.0 | 20.2 | 45.9 | 69  | 9.4 | 1.42 | 9.18  | 38755 | 271   | 1426  | 8.6 | 20.6 |
| 2519.0 | 10.8 | 46.3 | 67  | 9.4 | 1.63 | 9.27  | 39129 | 506   | 1413  | 8.6 | 20.6 |
| 2520.0 | 6.9  | 44.5 | 65  | 9.4 | 1.75 | 9.41  | 39697 | 792   | 1404  | 8.6 | 20.6 |
| 2521.0 | 5.1  | 47.7 | 65  | 9.4 | 1.89 | 9.61  | 40466 | 1080  | 1400  | 8.6 | 20.6 |
| 2522.0 | 4.1  | 46.0 | 65  | 9.4 | 1.95 | 9.85  | 41421 | 1334  | 1399  | 8.6 | 20.6 |
| 2523.0 | 3.6  | 45.1 | 65  | 9.4 | 1.98 | 10.13 | 42525 | 1541  | 1401  | 8.6 | 20.6 |
| 2524.0 | 3.9  | 47.7 | 63  | 9.4 | 1.97 | 10.39 | 43489 | 1401  | 1401  | 8.6 | 20.6 |
| 2525.0 | 3.7  | 49.1 | 62  | 9.4 | 2.01 | 10.66 | 44491 | 1472  | 1402  | 8.6 | 20.6 |
| 2526.0 | 6.0  | 49.8 | 62  | 9.4 | 1.84 | 10.83 | 45109 | 908   | 1395  | 8.6 | 20.6 |
| 2527.0 | 3.6  | 45.9 | 75  | 9.4 | 2.03 | 11.10 | 46346 | 1506  | 1396  | 8.6 | 20.6 |
| 2528.0 | 4.0  | 47.6 | 77  | 9.4 | 2.03 | 11.35 | 47492 | 1357  | 1396  | 8.6 | 20.6 |
| 2529.0 | 3.6  | 47.3 | 73  | 9.4 | 2.05 | 11.62 | 48698 | 1506  | 1397  | 8.6 | 20.6 |
| 2530.0 | 2.2  | 46.6 | 48  | 9.4 | 2.06 | 12.07 | 49984 | 2459  | 1411  | 8.6 | 20.6 |
| 2531.0 | 2.6  | 47.1 | 57  | 9.4 | 2.08 | 12.46 | 51316 | 2137  | 1420  | 8.6 | 20.6 |
| 2532.0 | 4.6  | 47.3 | 63  | 9.4 | 1.91 | 12.68 | 52127 | 1183  | 1417  | 8.6 | 20.6 |
| 2533.0 | 4.0  | 48.5 | 50  | 9.4 | 1.90 | 12.93 | 52886 | 1382  | 1416  | 8.6 | 20.6 |
| 2534.0 | 3.5  | 50.6 | 51  | 9.4 | 1.98 | 13.22 | 53770 | 1580  | 1418  | 8.6 | 20.6 |
| 2535.0 | 3.7  | 49.4 | 50  | 9.4 | 1.93 | 13.49 | 54577 | 1471  | 1419  | 8.6 | 20.6 |
| 2536.0 | 4.6  | 49.8 | 46  | 9.4 | 1.84 | 13.71 | 55188 | 1201  | 1416  | 8.6 | 20.6 |
| 2537.0 | 4.7  | 49.2 | 40  | 9.4 | 1.77 | 13.92 | 55700 | 1173  | 1414  | 8.6 | 20.6 |
| 2538.0 | 4.3  | 48.0 | 63  | 9.4 | 1.95 | 14.16 | 56584 | 1286  | 1412  | 8.6 | 20.6 |
| 2539.0 | 2.6  | 48.2 | 48  | 9.4 | 2.03 | 14.54 | 57697 | 2120  | 1420  | 8.6 | 20.6 |
| 2540.0 | 2.9  | 46.8 | 57  | 9.4 | 2.04 | 14.89 | 58897 | 1906  | 1425  | 8.6 | 20.6 |
| 2541.0 | 3.1  | 48.0 | 56  | 9.4 | 2.02 | 15.22 | 59986 | 1787  | 1429  | 8.6 | 20.6 |
| 2542.0 | 3.0  | 46.4 | 53  | 9.3 | 2.01 | 15.56 | 61062 | 1849  | 1434  | 8.6 | 20.6 |
| 2543.0 | 3.1  | 46.3 | 67  | 9.3 | 2.08 | 15.88 | 62374 | 1785  | 1438  | 8.6 | 20.6 |

| DEPTH  | ROP | WOB  | RPM | MW  | "d"c | HOURS | TURNS  | ICOST | CCOST | PP  | FG   |
|--------|-----|------|-----|-----|------|-------|--------|-------|-------|-----|------|
| 2544.0 | 2.5 | 40.8 | 63  | 9.3 | 2.04 | 16.28 | 63855  | 2150  | 1445  | 8.6 | 20.6 |
| 2545.0 | 3.1 | 40.5 | 57  | 9.3 | 1.94 | 16.60 | 64962  | 1775  | 1449  | 8.6 | 20.6 |
| 2546.0 | 2.8 | 45.9 | 58  | 9.3 | 2.06 | 16.96 | 66213  | 1980  | 1454  | 8.6 | 20.6 |
| 2547.0 | 2.6 | 48.5 | 58  | 9.3 | 2.12 | 17.34 | 67532  | 2085  | 1461  | 8.6 | 20.6 |
| 2548.0 | 2.0 | 49.4 | 58  | 9.3 | 2.23 | 17.84 | 69281  | 2751  | 1474  | 8.6 | 20.6 |
| 2549.0 | 1.7 | 49.5 | 59  | 9.3 | 2.28 | 18.42 | 71308  | 3144  | 1491  | 8.6 | 20.6 |
| 2550.0 | 1.6 | 53.7 | 55  | 9.3 | 2.36 | 19.06 | 73434  | 3527  | 1511  | 8.6 | 20.6 |
| 2551.0 | 1.7 | 54.3 | 70  | 9.3 | 2.42 | 19.65 | 75885  | 3210  | 1528  | 8.6 | 20.6 |
| 2552.0 | 1.7 | 52.0 | 69  | 9.3 | 2.38 | 20.23 | 78279  | 3176  | 1544  | 8.6 | 20.6 |
| 2553.0 | 4.2 | 53.2 | 67  | 9.3 | 2.07 | 20.47 | 79234  | 1304  | 1542  | 8.6 | 20.6 |
| 2554.0 | 2.9 | 55.6 | 64  | 9.3 | 2.22 | 20.82 | 80585  | 1916  | 1545  | 8.6 | 20.6 |
| 2555.0 | 2.6 | 54.4 | 66  | 9.3 | 2.25 | 21.20 | 82106  | 2106  | 1551  | 8.6 | 20.6 |
| 2556.0 | 2.6 | 54.0 | 68  | 9.3 | 2.26 | 21.59 | 83684  | 2106  | 1556  | 8.6 | 20.6 |
| 2557.0 | 2.8 | 54.1 | 68  | 9.3 | 2.23 | 21.94 | 85151  | 1955  | 1560  | 8.6 | 20.6 |
| 2558.0 | 3.5 | 55.0 | 65  | 9.3 | 2.15 | 22.23 | 86274  | 1564  | 1560  | 8.6 | 20.6 |
| 2559.0 | 3.9 | 49.7 | 64  | 9.3 | 2.03 | 22.49 | 87264  | 1404  | 1558  | 8.6 | 20.6 |
| 2560.0 | 3.0 | 50.0 | 66  | 9.3 | 2.14 | 22.82 | 88579  | 1825  | 1561  | 8.6 | 20.6 |
| 2561.0 | 2.4 | 51.8 | 57  | 9.3 | 2.19 | 23.24 | 90017  | 2281  | 1567  | 8.6 | 20.6 |
| 2562.0 | 2.4 | 51.0 | 55  | 9.3 | 2.17 | 23.65 | 91392  | 2281  | 1574  | 8.6 | 20.7 |
| 2563.0 | 2.1 | 53.7 | 53  | 9.3 | 2.24 | 24.13 | 92910  | 2607  | 1583  | 8.6 | 20.7 |
| 2564.0 | 2.2 | 46.0 | 54  | 9.3 | 2.12 | 24.58 | 94370  | 2489  | 1591  | 8.6 | 20.7 |
| 2565.0 | 2.1 | 50.7 | 53  | 9.3 | 2.20 | 25.06 | 95882  | 2607  | 1600  | 8.6 | 20.7 |
| 2566.0 | 2.4 | 58.9 | 48  | 9.3 | 2.23 | 25.48 | 97088  | 2281  | 1605  | 8.6 | 20.7 |
| 2567.0 | 2.5 | 51.6 | 57  | 9.3 | 2.18 | 25.88 | 98480  | 2213  | 1611  | 8.6 | 20.7 |
| 2568.0 | 2.9 | 53.2 | 53  | 9.3 | 2.12 | 26.22 | 99579  | 1888  | 1613  | 8.6 | 20.7 |
| 2569.0 | 2.7 | 53.9 | 55  | 9.3 | 2.16 | 26.60 | 100793 | 2028  | 1617  | 8.6 | 20.7 |
| 2570.0 | 3.1 | 51.5 | 52  | 9.3 | 2.06 | 26.92 | 101801 | 1766  | 1618  | 8.6 | 20.7 |
| 2571.0 | 3.4 | 52.3 | 52  | 9.3 | 2.04 | 27.21 | 102721 | 1610  | 1618  | 8.6 | 20.7 |
| 2572.0 | 3.1 | 50.7 | 48  | 9.3 | 2.02 | 27.53 | 103641 | 1766  | 1619  | 8.6 | 20.7 |
| 2573.0 | 2.6 | 46.0 | 77  | 9.3 | 2.18 | 27.92 | 105413 | 2106  | 1623  | 8.6 | 20.7 |
| 2574.0 | 4.2 | 48.0 | 76  | 9.3 | 2.04 | 28.16 | 106497 | 1304  | 1620  | 8.6 | 20.7 |
| 2575.0 | 5.7 | 49.0 | 40  | 9.3 | 1.72 | 28.33 | 106920 | 961   | 1615  | 8.6 | 20.7 |
| 2576.0 | 5.0 | 49.0 | 70  | 9.4 | 1.94 | 28.53 | 107759 | 1095  | 1611  | 8.6 | 20.7 |
| 2577.0 | 3.8 | 49.0 | 71  | 9.4 | 2.04 | 28.80 | 108875 | 1441  | 1610  | 8.6 | 20.7 |
| 2578.0 | 3.1 | 47.7 | 74  | 9.4 | 2.11 | 29.12 | 110313 | 1766  | 1611  | 8.6 | 20.7 |
| 2579.0 | 3.4 | 52.7 | 69  | 9.4 | 2.12 | 29.41 | 111530 | 1612  | 1611  | 8.6 | 20.7 |
| 2580.0 | 2.9 | 53.2 | 69  | 9.4 | 2.19 | 29.76 | 112963 | 1888  | 1613  | 8.6 | 20.7 |
| 2581.0 | 5.6 | 51.1 | 68  | 9.4 | 1.92 | 29.94 | 113696 | 978   | 1608  | 8.6 | 20.7 |
| 2582.0 | 5.9 | 52.1 | 69  | 9.4 | 1.92 | 30.11 | 114398 | 928   | 1603  | 8.6 | 20.7 |
| 2583.0 | 4.2 | 52.4 | 69  | 9.4 | 2.05 | 30.34 | 115390 | 1304  | 1601  | 8.6 | 20.7 |
| 2584.0 | 3.9 | 53.0 | 69  | 9.4 | 2.08 | 30.60 | 116452 | 1404  | 1599  | 8.6 | 20.7 |
| 2585.0 | 4.3 | 53.8 | 69  | 9.4 | 2.05 | 30.83 | 117414 | 1273  | 1597  | 8.6 | 20.7 |
| 2586.0 | 3.8 | 54.6 | 69  | 9.4 | 2.11 | 31.10 | 118499 | 1441  | 1596  | 8.6 | 20.7 |
| 2587.0 | 3.3 | 53.7 | 72  | 9.4 | 2.16 | 31.40 | 119799 | 1659  | 1596  | 8.6 | 20.7 |
| 2588.0 | 4.5 | 53.5 | 70  | 9.3 | 2.06 | 31.62 | 120738 | 1217  | 1593  | 8.6 | 20.7 |
| 2589.0 | 4.1 | 53.4 | 71  | 9.3 | 2.10 | 31.87 | 121770 | 1335  | 1591  | 8.6 | 20.7 |
| 2590.0 | 4.9 | 50.0 | 71  | 9.3 | 1.99 | 32.07 | 122635 | 1117  | 1588  | 8.6 | 20.7 |
| 2591.0 | 4.4 | 49.0 | 70  | 9.3 | 2.01 | 32.30 | 123595 | 1244  | 1586  | 8.6 | 20.7 |
| 2592.0 | 4.7 | 50.0 | 71  | 9.3 | 2.00 | 32.51 | 124500 | 1165  | 1583  | 8.6 | 20.7 |
| 2593.0 | 6.3 | 52.0 | 69  | 9.3 | 1.91 | 32.67 | 125156 | 869   | 1578  | 8.6 | 20.7 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | URNS   | ICOST | CCOST | PP  | FG   |
|--------|------|------|-----|-----|------|-------|--------|-------|-------|-----|------|
| 2594.0 | 6.1  | 51.0 | 70  | 9.3 | 1.92 | 32.83 | 125842 | 898   | 1573  | 8.6 | 20.7 |
| 2595.0 | 3.7  | 53.0 | 71  | 9.3 | 2.13 | 33.10 | 126987 | 1480  | 1572  | 8.6 | 20.7 |
| 2596.0 | 4.7  | 53.0 | 71  | 9.3 | 2.04 | 33.31 | 127891 | 1165  | 1570  | 8.6 | 20.7 |
| 2597.0 | 6.1  | 50.0 | 70  | 9.3 | 1.91 | 33.48 | 128581 | 898   | 1565  | 8.6 | 20.7 |
| 2598.0 | 5.6  | 54.6 | 71  | 9.3 | 2.00 | 33.66 | 129339 | 978   | 1561  | 8.6 | 20.7 |
| 2599.0 | 4.2  | 52.2 | 70  | 9.3 | 2.07 | 33.90 | 130336 | 1304  | 1559  | 8.6 | 20.7 |
| 2600.0 | 5.9  | 50.0 | 70  | 9.3 | 1.92 | 34.07 | 131046 | 928   | 1555  | 8.6 | 20.7 |
| 2601.0 | 5.6  | 50.0 | 70  | 9.3 | 1.94 | 34.24 | 131795 | 978   | 1551  | 8.6 | 20.7 |
| 2602.0 | 4.8  | 50.0 | 69  | 9.3 | 1.99 | 34.45 | 132664 | 1141  | 1549  | 8.6 | 20.7 |
| 2603.0 | 5.0  | 50.0 | 70  | 9.3 | 1.98 | 34.65 | 133502 | 1095  | 1546  | 8.6 | 20.7 |
| 2604.0 | 8.1  | 50.0 | 69  | 9.3 | 1.80 | 34.78 | 134014 | 676   | 1540  | 8.6 | 20.7 |
| 2605.0 | 12.7 | 50.0 | 68  | 9.2 | 1.65 | 34.85 | 134333 | 431   | 1533  | 8.6 | 20.7 |
| 2606.0 | 6.7  | 50.0 | 67  | 9.2 | 1.88 | 35.00 | 134931 | 817   | 1528  | 8.6 | 20.7 |
| 2607.0 | 4.7  | 50.0 | 68  | 9.2 | 2.01 | 35.22 | 135796 | 1165  | 1526  | 8.6 | 20.7 |
| 2608.0 | 6.0  | 48.9 | 67  | 9.2 | 1.90 | 35.38 | 136469 | 913   | 1522  | 8.6 | 20.7 |
| 2609.0 | 5.6  | 46.3 | 71  | 9.2 | 1.91 | 35.56 | 137226 | 978   | 1519  | 8.6 | 20.7 |
| 2610.0 | 4.4  | 47.0 | 72  | 9.2 | 2.01 | 35.79 | 138204 | 1244  | 1517  | 8.6 | 20.7 |
| 2611.0 | 6.4  | 48.5 | 71  | 9.2 | 1.89 | 35.94 | 138866 | 855   | 1513  | 8.6 | 20.7 |
| 2612.0 | 4.6  | 46.9 | 72  | 9.2 | 1.99 | 36.16 | 139799 | 1190  | 1511  | 8.6 | 20.7 |
| 2613.0 | 5.6  | 47.3 | 71  | 9.2 | 1.93 | 36.34 | 140557 | 978   | 1507  | 8.6 | 20.7 |
| 2614.0 | 4.3  | 48.9 | 71  | 9.2 | 2.04 | 36.57 | 141545 | 1273  | 1506  | 8.6 | 20.7 |
| 2615.0 | 3.4  | 51.1 | 72  | 9.2 | 2.16 | 36.87 | 142807 | 1610  | 1507  | 8.6 | 20.7 |
| 2616.0 | 5.3  | 50.4 | 71  | 9.2 | 1.99 | 37.06 | 143607 | 1033  | 1504  | 8.6 | 20.7 |
| 2617.0 | 6.9  | 52.7 | 70  | 9.2 | 1.92 | 37.20 | 144219 | 793   | 1500  | 8.6 | 20.7 |
| 2618.0 | 5.7  | 47.6 | 71  | 9.2 | 1.93 | 37.38 | 144968 | 961   | 1496  | 8.6 | 20.7 |
| 2619.0 | 5.9  | 48.5 | 66  | 9.2 | 1.90 | 37.55 | 145642 | 928   | 1493  | 8.6 | 20.7 |
| 2620.0 | 6.2  | 43.2 | 70  | 9.2 | 1.83 | 37.71 | 146318 | 883   | 1489  | 8.6 | 20.7 |
| 2621.0 | 6.4  | 42.9 | 66  | 9.2 | 1.80 | 37.86 | 146940 | 855   | 1486  | 8.6 | 20.7 |
| 2622.0 | 5.5  | 44.0 | 56  | 9.2 | 1.81 | 38.05 | 147556 | 995   | 1483  | 8.6 | 20.7 |
| 2623.0 | 4.6  | 44.2 | 66  | 9.2 | 1.93 | 38.26 | 148415 | 1190  | 1481  | 8.6 | 20.7 |
| 2624.0 | 2.9  | 44.3 | 56  | 9.2 | 2.03 | 38.61 | 149566 | 1888  | 1484  | 8.6 | 20.7 |
| 2625.0 | 2.9  | 43.1 | 56  | 9.2 | 2.02 | 38.95 | 150729 | 1888  | 1486  | 8.6 | 20.7 |
| 2626.0 | 2.9  | 51.9 | 63  | 9.2 | 2.18 | 39.30 | 152029 | 1878  | 1488  | 8.6 | 20.7 |
| 2627.0 | 4.0  | 50.3 | 59  | 9.2 | 2.02 | 39.55 | 152917 | 1369  | 1487  | 8.6 | 20.7 |
| 2628.0 | 5.6  | 51.4 | 59  | 9.2 | 1.91 | 39.72 | 153550 | 978   | 1485  | 8.6 | 20.7 |
| 2630.0 | 6.1  | 38.0 | 65  | 9.2 | 1.74 | 40.05 | 154829 | 898   | 1478  | 8.6 | 20.7 |
| 2631.0 | 6.9  | 35.4 | 74  | 9.2 | 1.71 | 40.20 | 155473 | 793   | 1474  | 8.6 | 20.7 |
| 2632.0 | 2.9  | 40.3 | 58  | 9.2 | 1.99 | 40.54 | 156680 | 1888  | 1476  | 8.6 | 20.7 |
| 2633.0 | 3.3  | 44.9 | 59  | 9.2 | 2.01 | 40.84 | 157750 | 1659  | 1477  | 8.6 | 20.7 |
| 2634.0 | 3.1  | 37.4 | 60  | 9.2 | 1.93 | 41.17 | 158908 | 1766  | 1479  | 8.6 | 20.7 |
| 2635.0 | 4.8  | 40.2 | 57  | 9.2 | 1.81 | 41.38 | 159625 | 1141  | 1477  | 8.6 | 20.7 |
| 2636.0 | 3.5  | 40.0 | 59  | 9.2 | 1.92 | 41.66 | 160634 | 1564  | 1478  | 8.6 | 20.7 |
| 2637.0 | 3.6  | 45.5 | 59  | 9.2 | 1.99 | 41.94 | 161620 | 1521  | 1478  | 8.6 | 20.7 |
| 2638.0 | 3.4  | 40.8 | 59  | 9.2 | 1.95 | 42.23 | 162667 | 1610  | 1479  | 8.6 | 20.7 |
| 2639.0 | 3.2  | 41.5 | 59  | 9.2 | 1.98 | 42.55 | 163778 | 1711  | 1480  | 8.6 | 20.7 |
| 2640.0 | 3.2  | 39.0 | 59  | 9.2 | 1.94 | 42.86 | 164893 | 1711  | 1481  | 8.6 | 20.7 |
| 2641.0 | 2.9  | 37.6 | 59  | 9.2 | 1.95 | 43.20 | 166106 | 1888  | 1483  | 8.6 | 20.7 |
| 2642.0 | 7.8  | 36.4 | 58  | 9.2 | 1.60 | 43.33 | 166553 | 702   | 1479  | 8.6 | 20.7 |
| 2643.0 | 3.1  | 40.8 | 69  | 9.2 | 2.03 | 43.65 | 167888 | 1766  | 1481  | 8.6 | 20.8 |
| 2644.0 | 3.5  | 42.1 | 61  | 9.2 | 1.96 | 43.94 | 168933 | 1564  | 1481  | 8.6 | 20.8 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"r | HOURS | URNS   | ICOST | CCOST | PP  | FG   |
|--------|------|------|-----|-----|------|-------|--------|-------|-------|-----|------|
| 2645.0 | 3.5  | 41.4 | 60  | 9.2 | 1.95 | 44.23 | 169966 | 1564  | 1481  | 8.6 | 20.8 |
| 2646.0 | 2.3  | 53.1 | 65  | 9.2 | 2.30 | 44.66 | 171664 | 2380  | 1486  | 8.6 | 20.8 |
| 2647.0 | 3.4  | 46.2 | 64  | 9.2 | 2.05 | 44.95 | 172785 | 1610  | 1487  | 8.6 | 20.8 |
| 2648.0 | 5.1  | 48.6 | 62  | 9.2 | 1.93 | 45.15 | 173519 | 1074  | 1485  | 8.6 | 20.8 |
| 2649.0 | 4.2  | 48.8 | 62  | 9.2 | 2.00 | 45.39 | 174408 | 1304  | 1484  | 8.6 | 20.8 |
| 2650.0 | 4.5  | 48.7 | 63  | 9.2 | 1.98 | 45.61 | 175251 | 1217  | 1482  | 8.6 | 20.8 |
| 2651.0 | 4.3  | 48.8 | 62  | 9.2 | 2.00 | 45.84 | 176122 | 1273  | 1481  | 8.6 | 20.8 |
| 2652.0 | 4.2  | 48.6 | 63  | 9.2 | 2.01 | 46.08 | 177027 | 1304  | 1480  | 8.6 | 20.8 |
| 2653.0 | 5.9  | 49.2 | 63  | 9.2 | 1.89 | 46.25 | 177667 | 928   | 1478  | 8.6 | 20.8 |
| 2654.0 | 4.9  | 52.3 | 64  | 9.2 | 2.01 | 46.45 | 178454 | 1117  | 1476  | 8.6 | 20.8 |
| 2655.0 | 4.4  | 54.6 | 64  | 9.2 | 2.07 | 46.68 | 179333 | 1244  | 1475  | 8.6 | 20.8 |
| 2656.0 | 3.9  | 50.1 | 65  | 9.2 | 2.06 | 46.94 | 180334 | 1404  | 1474  | 8.6 | 20.8 |
| 2657.0 | 5.6  | 48.0 | 64  | 9.2 | 1.90 | 47.12 | 181020 | 978   | 1472  | 8.6 | 20.8 |
| 2658.0 | 8.9  | 45.8 | 64  | 9.2 | 1.71 | 47.23 | 181450 | 615   | 1468  | 8.6 | 20.8 |
| 2659.0 | 4.7  | 45.5 | 63  | 9.2 | 1.92 | 47.44 | 182258 | 1165  | 1467  | 8.6 | 20.8 |
| 2660.0 | 5.6  | 49.7 | 63  | 9.2 | 1.92 | 47.62 | 182938 | 978   | 1464  | 8.6 | 20.8 |
| 2661.0 | 5.6  | 47.9 | 63  | 9.2 | 1.89 | 47.80 | 183616 | 978   | 1462  | 8.6 | 20.8 |
| 2662.0 | 4.3  | 42.7 | 64  | 9.2 | 1.92 | 48.03 | 184506 | 1273  | 1461  | 8.6 | 20.8 |
| 2663.0 | 6.5  | 47.4 | 62  | 9.2 | 1.83 | 48.19 | 185082 | 842   | 1458  | 8.6 | 20.8 |
| 2664.0 | 13.5 | 48.0 | 66  | 9.2 | 1.60 | 48.26 | 185375 | 406   | 1453  | 8.6 | 20.8 |
| 2665.0 | 7.6  | 47.2 | 64  | 9.2 | 1.78 | 48.39 | 185881 | 720   | 1450  | 8.6 | 20.8 |
| 2666.0 | 12.6 | 49.7 | 63  | 9.2 | 1.63 | 48.47 | 186181 | 435   | 1445  | 8.6 | 20.8 |
| 2667.0 | 12.1 | 46.8 | 64  | 9.2 | 1.61 | 48.55 | 186498 | 452   | 1440  | 8.6 | 20.8 |
| 2668.0 | 9.6  | 45.6 | 64  | 9.2 | 1.68 | 48.66 | 186898 | 570   | 1436  | 8.6 | 20.8 |
| 2669.0 | 5.6  | 49.3 | 64  | 9.2 | 1.92 | 48.84 | 187582 | 978   | 1434  | 8.6 | 20.8 |
| 2670.0 | 3.7  | 47.0 | 60  | 9.2 | 2.01 | 49.11 | 188562 | 1480  | 1435  | 8.6 | 20.8 |
| 2671.0 | 4.4  | 48.2 | 60  | 9.2 | 1.96 | 49.33 | 189378 | 1244  | 1434  | 8.6 | 20.8 |
| 2672.0 | 5.3  | 43.7 | 59  | 9.2 | 1.83 | 49.52 | 190046 | 1033  | 1432  | 8.6 | 20.8 |
| 2673.0 | 8.9  | 48.6 | 62  | 9.2 | 1.73 | 49.63 | 190464 | 615   | 1428  | 8.6 | 20.8 |
| 2674.0 | 10.6 | 48.0 | 63  | 9.2 | 1.67 | 49.73 | 190819 | 517   | 1424  | 8.6 | 20.8 |
| 2675.0 | 8.2  | 50.6 | 64  | 9.2 | 1.79 | 49.85 | 191286 | 668   | 1421  | 8.6 | 20.8 |
| 2676.0 | 6.9  | 48.4 | 63  | 9.2 | 1.83 | 50.00 | 191836 | 793   | 1418  | 8.6 | 20.8 |
| 2677.0 | 8.5  | 50.6 | 63  | 9.2 | 1.78 | 50.11 | 192279 | 644   | 1415  | 8.6 | 20.8 |
| 2678.0 | 8.9  | 49.0 | 63  | 9.2 | 1.74 | 50.23 | 192705 | 615   | 1411  | 8.6 | 20.8 |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 11      | IADC CODE   | 537    | INTERVAL  | 2678.0- 2683.5 |
| HTC J33     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 6637.00 | TRIP TIME   | 7.5    | BIT RUN   | 5.5            |
| TOTAL HOURS | 0.97    | TOTAL TURNS | 2075   | CONDITION | T1 B1 G0.000   |

| DEPTH  | ROP | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST | CCOST | PP  | FG   |
|--------|-----|------|-----|-----|------|-------|-------|-------|-------|-----|------|
| 2679.0 | 3.9 | 15.8 | 31  | 9.2 | 1.30 | 0.25  | 480   | 1392  | 49091 | 8.6 | 20.8 |
| 2680.0 | 7.3 | 34.8 | 41  | 9.2 | 1.49 | 0.39  | 817   | 750   | 24921 | 8.6 | 20.8 |
| 2681.0 | 6.7 | 47.6 | 44  | 9.2 | 1.69 | 0.54  | 1207  | 817   | 16886 | 8.6 | 20.8 |
| 2682.0 | 7.9 | 41.7 | 40  | 9.2 | 1.54 | 0.67  | 1512  | 693   | 12838 | 8.6 | 20.8 |
| 2683.0 | 4.9 | 45.5 | 33  | 9.2 | 1.68 | 0.87  | 1915  | 1117  | 10494 | 8.6 | 20.8 |
| 2683.5 | 5.1 | 51.8 | 27  | 9.2 | 1.67 | 0.97  | 2075  | 1065  | 9637  | 8.6 | 20.8 |

|             |       |             |        |           |                |
|-------------|-------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 11    | IADC CODE   | 537    | INTERVAL  | 2683.5- 2767.7 |
| HTC J33     |       | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 0.00  | TRIP TIME   | 7.7    | BIT RUN   | 84.2           |
| TOTAL HOURS | 28.25 | TOTAL TURNS | 96616  | CONDITION | T8 B4 G0.250   |

| DEPTH  | ROP | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST | CCOST | PP  | FG   |
|--------|-----|------|-----|-----|------|-------|-------|-------|-------|-----|------|
| 2684.0 | 7.0 | 45.9 | 73  | 9.2 | 1.84 | 1.04  | 2386  | 782   | 95719 | 8.6 | 20.8 |
| 2685.0 | 7.6 | 46.6 | 45  | 9.2 | 1.65 | 1.17  | 2741  | 720   | 32386 | 8.6 | 20.8 |
| 2686.0 | 9.8 | 49.2 | 86  | 9.2 | 1.82 | 1.28  | 3266  | 559   | 19655 | 8.6 | 20.8 |
| 2687.0 | 6.2 | 45.4 | 50  | 9.2 | 1.75 | 1.44  | 3753  | 883   | 14292 | 8.6 | 20.8 |
| 2688.0 | 4.4 | 47.5 | 50  | 9.2 | 1.89 | 1.66  | 4432  | 1244  | 11392 | 8.6 | 20.8 |
| 2689.0 | 5.4 | 47.6 | 49  | 9.2 | 1.82 | 1.85  | 4980  | 1014  | 9505  | 8.6 | 20.8 |
| 2690.0 | 6.9 | 48.3 | 61  | 9.2 | 1.81 | 1.99  | 5514  | 793   | 8165  | 8.6 | 20.8 |
| 2691.0 | 4.3 | 44.8 | 48  | 9.2 | 1.85 | 2.23  | 6179  | 1273  | 7246  | 8.6 | 20.8 |
| 2692.0 | 5.2 | 46.4 | 61  | 9.2 | 1.89 | 2.42  | 6888  | 1053  | 6518  | 8.6 | 20.8 |
| 2693.0 | 5.0 | 49.3 | 63  | 9.2 | 1.95 | 2.62  | 7644  | 1095  | 5947  | 8.6 | 20.8 |
| 2694.0 | 3.8 | 49.2 | 57  | 9.2 | 2.02 | 2.88  | 8550  | 1441  | 5518  | 8.6 | 20.8 |
| 2695.0 | 5.1 | 55.1 | 46  | 9.2 | 1.90 | 3.08  | 9096  | 1074  | 5131  | 8.6 | 20.8 |
| 2696.0 | 3.3 | 54.5 | 50  | 9.2 | 2.08 | 3.38  | 10000 | 1659  | 4853  | 8.6 | 20.8 |
| 2697.0 | 3.9 | 49.4 | 63  | 9.2 | 2.04 | 3.64  | 10971 | 1404  | 4598  | 8.6 | 20.8 |
| 2698.0 | 6.7 | 48.2 | 64  | 9.2 | 1.84 | 3.79  | 11541 | 817   | 4337  | 8.6 | 20.8 |
| 2699.0 | 6.3 | 49.1 | 64  | 9.2 | 1.87 | 3.95  | 12149 | 869   | 4113  | 8.6 | 20.8 |
| 2700.0 | 6.2 | 49.4 | 62  | 9.2 | 1.87 | 4.11  | 12753 | 883   | 3918  | 8.6 | 20.8 |
| 2701.0 | 4.6 | 52.2 | 64  | 9.2 | 2.03 | 4.32  | 13592 | 1190  | 3762  | 8.6 | 20.8 |
| 2702.0 | 3.9 | 51.8 | 62  | 9.2 | 2.07 | 4.58  | 14550 | 1404  | 3634  | 8.6 | 20.8 |
| 2703.0 | 7.9 | 52.3 | 61  | 9.2 | 1.81 | 4.71  | 15013 | 693   | 3483  | 8.6 | 20.8 |
| 2704.0 | 4.9 | 49.6 | 62  | 9.2 | 1.96 | 4.91  | 15774 | 1117  | 3368  | 8.6 | 20.8 |
| 2705.0 | 5.8 | 50.1 | 62  | 9.2 | 1.90 | 5.08  | 16420 | 944   | 3255  | 8.6 | 20.8 |
| 2706.0 | 5.3 | 51.4 | 63  | 9.2 | 1.96 | 5.27  | 17135 | 1033  | 3157  | 8.6 | 20.8 |
| 2707.0 | 5.6 | 51.3 | 60  | 9.2 | 1.92 | 5.45  | 17780 | 978   | 3064  | 8.6 | 20.8 |
| 2708.0 | 4.5 | 54.3 | 61  | 9.2 | 2.04 | 5.67  | 18595 | 1217  | 2988  | 8.6 | 20.8 |
| 2709.0 | 6.7 | 53.1 | 59  | 9.2 | 1.87 | 5.82  | 19122 | 817   | 2903  | 8.6 | 20.8 |
| 2710.0 | 6.1 | 47.9 | 66  | 9.2 | 1.88 | 5.99  | 19769 | 898   | 2828  | 8.6 | 20.8 |
| 2711.0 | 4.7 | 47.0 | 66  | 9.2 | 1.96 | 6.20  | 20611 | 1165  | 2767  | 8.6 | 20.8 |
| 2712.0 | 7.1 | 52.8 | 65  | 9.2 | 1.88 | 6.34  | 21157 | 771   | 2697  | 8.6 | 20.8 |
| 2713.0 | 6.2 | 49.3 | 65  | 9.2 | 1.89 | 6.50  | 21790 | 883   | 2636  | 8.6 | 20.8 |
| 2714.0 | 6.3 | 53.4 | 65  | 9.2 | 1.93 | 6.66  | 22413 | 869   | 2578  | 8.6 | 20.8 |
| 2715.0 | 6.5 | 51.8 | 65  | 9.2 | 1.90 | 6.81  | 23016 | 842   | 2523  | 8.6 | 20.8 |
| 2716.0 | 7.4 | 52.4 | 65  | 9.2 | 1.86 | 6.95  | 23542 | 738   | 2468  | 8.6 | 20.8 |
| 2717.0 | 6.6 | 50.5 | 65  | 9.2 | 1.88 | 7.10  | 24132 | 830   | 2419  | 8.6 | 20.8 |
| 2718.0 | 6.8 | 50.0 | 64  | 9.2 | 1.86 | 7.25  | 24699 | 805   | 2372  | 8.6 | 20.8 |
| 2719.0 | 6.1 | 50.0 | 59  | 9.2 | 1.86 | 7.41  | 25278 | 898   | 2330  | 8.6 | 20.8 |
| 2720.0 | 6.1 | 50.0 | 59  | 9.2 | 1.86 | 7.57  | 25856 | 898   | 2291  | 8.6 | 20.8 |
| 2721.0 | 6.5 | 50.0 | 59  | 9.2 | 1.84 | 7.73  | 26399 | 842   | 2253  | 8.6 | 20.8 |
| 2722.0 | 6.4 | 50.0 | 59  | 9.2 | 1.85 | 7.88  | 26953 | 855   | 2216  | 8.6 | 20.8 |
| 2723.0 | 7.3 | 50.0 | 59  | 9.2 | 1.80 | 8.02  | 27436 | 750   | 2179  | 8.6 | 20.8 |
| 2724.0 | 6.7 | 51.4 | 59  | 9.2 | 1.85 | 8.17  | 27966 | 817   | 2146  | 8.6 | 20.8 |
| 2725.0 | 4.0 | 52.4 | 60  | 9.2 | 2.05 | 8.42  | 28866 | 1369  | 2127  | 8.6 | 20.9 |
| 2726.0 | 3.8 | 47.4 | 60  | 9.2 | 2.00 | 8.68  | 29808 | 1441  | 2111  | 8.6 | 20.9 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST | CCOST | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|-------|-------|-----|------|
| 2727.0 | 4.4  | 46.8 | 59  | 9.2 | 1.94 | 8.91  | 30619 | 1244  | 2091  | 8.6 | 20.9 |
| 2728.0 | 3.9  | 51.4 | 59  | 9.2 | 2.05 | 9.17  | 31526 | 1404  | 2075  | 8.6 | 20.9 |
| 2729.0 | 4.4  | 52.9 | 59  | 9.2 | 2.02 | 9.40  | 32328 | 1244  | 2057  | 8.6 | 20.9 |
| 2730.0 | 4.4  | 52.7 | 62  | 9.2 | 2.03 | 9.62  | 33171 | 1244  | 2040  | 8.6 | 20.9 |
| 2731.0 | 4.6  | 53.2 | 62  | 9.2 | 2.03 | 9.84  | 33979 | 1190  | 2022  | 8.6 | 20.9 |
| 2732.0 | 5.0  | 47.5 | 64  | 9.2 | 1.93 | 10.04 | 34742 | 1095  | 2003  | 8.6 | 20.9 |
| 2733.0 | 4.0  | 49.6 | 61  | 9.2 | 2.02 | 10.29 | 35651 | 1369  | 1990  | 8.6 | 20.9 |
| 2734.0 | 4.1  | 49.5 | 61  | 9.2 | 2.01 | 10.53 | 36540 | 1335  | 1977  | 8.6 | 20.9 |
| 2735.0 | 3.6  | 49.2 | 61  | 9.2 | 2.06 | 10.81 | 37559 | 1521  | 1968  | 8.6 | 20.9 |
| 2736.0 | 4.5  | 47.8 | 59  | 9.2 | 1.95 | 11.03 | 38352 | 1217  | 1954  | 8.6 | 20.9 |
| 2737.0 | 5.2  | 48.1 | 61  | 9.2 | 1.91 | 11.23 | 39060 | 1053  | 1937  | 8.6 | 20.9 |
| 2738.0 | 4.0  | 50.6 | 63  | 9.2 | 2.05 | 11.48 | 40002 | 1369  | 1926  | 8.6 | 20.9 |
| 2739.0 | 3.2  | 56.7 | 62  | 9.2 | 2.21 | 11.79 | 41171 | 1711  | 1923  | 8.6 | 20.9 |
| 2740.0 | 3.5  | 53.5 | 63  | 9.2 | 2.14 | 12.07 | 42248 | 1564  | 1916  | 8.6 | 20.9 |
| 2741.0 | 4.3  | 57.0 | 66  | 9.2 | 2.13 | 12.31 | 43174 | 1273  | 1905  | 8.6 | 20.9 |
| 2742.0 | 3.9  | 55.0 | 66  | 9.2 | 2.13 | 12.56 | 44191 | 1404  | 1896  | 8.6 | 20.9 |
| 2743.0 | 2.4  | 55.0 | 66  | 9.2 | 2.31 | 12.98 | 45842 | 2281  | 1903  | 8.6 | 20.9 |
| 2744.0 | 3.2  | 55.0 | 66  | 9.2 | 2.21 | 13.29 | 47083 | 1711  | 1900  | 8.6 | 20.9 |
| 2745.0 | 2.9  | 55.0 | 67  | 9.2 | 2.25 | 13.64 | 48461 | 1888  | 1900  | 8.6 | 20.9 |
| 2746.0 | 2.7  | 55.0 | 67  | 9.2 | 2.27 | 14.01 | 49941 | 2028  | 1902  | 8.6 | 20.9 |
| 2747.0 | 2.0  | 55.0 | 57  | 9.2 | 2.33 | 14.51 | 51651 | 2738  | 1915  | 8.6 | 20.9 |
| 2748.0 | 2.4  | 55.0 | 57  | 9.2 | 2.26 | 14.92 | 53086 | 2281  | 1920  | 8.6 | 20.9 |
| 2749.0 | 4.0  | 55.0 | 50  | 9.2 | 2.02 | 15.17 | 53842 | 1369  | 1912  | 8.6 | 20.9 |
| 2750.0 | 1.3  | 55.0 | 51  | 9.2 | 2.45 | 15.94 | 56198 | 4212  | 1947  | 8.6 | 20.9 |
| 2751.0 | 1.3  | 55.0 | 50  | 9.2 | 2.44 | 16.71 | 58521 | 4212  | 1980  | 8.6 | 20.9 |
| 2752.0 | 1.9  | 55.0 | 51  | 9.2 | 2.30 | 17.24 | 60120 | 2882  | 1993  | 8.6 | 20.9 |
| 2753.0 | 1.8  | 55.0 | 61  | 9.2 | 2.39 | 17.79 | 62147 | 3042  | 2008  | 8.6 | 20.9 |
| 2754.0 | 1.3  | 57.3 | 52  | 9.2 | 2.49 | 18.56 | 64532 | 4212  | 2040  | 8.6 | 20.9 |
| 2755.0 | 3.0  | 56.0 | 52  | 9.2 | 2.16 | 18.90 | 65572 | 1825  | 2037  | 8.6 | 20.9 |
| 2756.0 | 3.9  | 58.6 | 42  | 9.2 | 2.01 | 19.15 | 66223 | 1404  | 2028  | 8.6 | 20.9 |
| 2757.0 | 2.9  | 58.8 | 52  | 9.2 | 2.21 | 19.50 | 67296 | 1888  | 2026  | 8.6 | 20.9 |
| 2758.0 | 1.9  | 57.4 | 52  | 9.2 | 2.35 | 20.03 | 68965 | 2920  | 2038  | 8.6 | 20.9 |
| 2759.0 | 1.0  | 55.7 | 52  | 9.2 | 2.57 | 21.03 | 72105 | 5475  | 2084  | 8.6 | 20.9 |
| 2760.0 | 4.0  | 54.4 | 52  | 9.2 | 2.03 | 21.28 | 72889 | 1369  | 2074  | 8.6 | 20.9 |
| 2761.0 | 6.0  | 54.6 | 53  | 9.2 | 1.88 | 21.45 | 73414 | 913   | 2059  | 8.6 | 20.9 |
| 2762.0 | 12.4 | 46.6 | 49  | 9.2 | 1.51 | 21.53 | 73653 | 442   | 2039  | 8.6 | 20.9 |
| 2763.0 | 14.3 | 46.0 | 51  | 9.2 | 1.46 | 21.60 | 73867 | 383   | 2018  | 8.6 | 20.9 |
| 2764.0 | 0.5  | 54.4 | 52  | 9.2 | 2.80 | 23.60 | 80065 | 10950 | 2129  | 8.6 | 20.9 |
| 2765.0 | 0.9  | 58.4 | 61  | 9.2 | 2.70 | 24.71 | 84106 | 6083  | 2177  | 8.6 | 20.9 |
| 2766.0 | 0.6  | 54.2 | 59  | 9.2 | 2.77 | 26.38 | 89982 | 9125  | 2261  | 8.6 | 20.9 |
| 2767.0 | 1.0  | 56.4 | 60  | 9.2 | 2.63 | 27.38 | 93595 | 5475  | 2300  | 8.6 | 20.9 |
| 2767.7 | 0.8  | 55.8 | 58  | 9.1 | 2.72 | 28.25 | 96616 | 6844  | 2338  | 8.6 | 20.9 |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 12      | IADC CODE   | 617    | INTERVAL  | 2767.7- 2806.3 |
| HTC J44     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 4919.00 | TRIP TIME   | 7.0    | BIT RUN   | 38.6           |
| TOTAL HOURS | 6.93    | TOTAL TURNS | 18538  | CONDITION | T1 B1 G0.000   |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST | CCOST  | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|-------|--------|-----|------|
| 2768.0 | 2.5  | 40.9 | 43  | 9.1 | 1.97 | 0.12  | 310   | 2190  | 160937 | 8.6 | 20.9 |
| 2769.0 | 5.8  | 55.7 | 43  | 9.1 | 1.86 | 0.29  | 756   | 948   | 37869  | 8.6 | 20.9 |
| 2770.0 | 4.3  | 55.9 | 43  | 9.1 | 1.97 | 0.53  | 1363  | 1276  | 21959  | 8.6 | 20.9 |
| 2771.0 | 4.6  | 54.9 | 44  | 9.1 | 1.94 | 0.74  | 1937  | 1194  | 15666  | 8.6 | 20.9 |
| 2772.0 | 5.3  | 55.0 | 44  | 9.1 | 1.89 | 0.93  | 2437  | 1033  | 12263  | 8.8 | 20.8 |
| 2773.0 | 4.9  | 55.0 | 44  | 9.1 | 1.92 | 1.14  | 2981  | 1119  | 10161  | 8.8 | 20.8 |
| 2774.0 | 5.1  | 55.0 | 44  | 9.1 | 1.91 | 1.33  | 3504  | 1072  | 8718   | 8.8 | 20.9 |
| 2775.0 | 5.0  | 55.0 | 44  | 9.1 | 1.91 | 1.53  | 4031  | 1100  | 7674   | 8.8 | 20.9 |
| 2776.0 | 7.0  | 55.0 | 44  | 9.1 | 1.79 | 1.68  | 4413  | 782   | 6844   | 8.8 | 20.9 |
| 2777.0 | 6.9  | 55.0 | 45  | 9.1 | 1.79 | 1.82  | 4799  | 792   | 6193   | 8.8 | 20.9 |
| 2778.0 | 8.0  | 55.0 | 44  | 9.1 | 1.74 | 1.95  | 5132  | 683   | 5658   | 8.8 | 20.9 |
| 2779.0 | 7.8  | 55.7 | 45  | 9.1 | 1.76 | 2.07  | 5474  | 701   | 5220   | 8.8 | 20.9 |
| 2780.0 | 6.7  | 56.9 | 45  | 9.1 | 1.83 | 2.22  | 5876  | 821   | 4862   | 8.8 | 20.9 |
| 2781.0 | 6.7  | 56.7 | 45  | 9.1 | 1.83 | 2.37  | 6276  | 818   | 4558   | 8.8 | 20.9 |
| 2782.0 | 10.7 | 54.6 | 45  | 9.1 | 1.63 | 2.47  | 6526  | 510   | 4275   | 8.8 | 20.9 |
| 2783.0 | 3.4  | 54.2 | 45  | 9.1 | 2.06 | 2.76  | 7330  | 1626  | 4102   | 8.8 | 20.9 |
| 2784.0 | 4.2  | 55.1 | 46  | 9.1 | 1.99 | 3.00  | 7980  | 1290  | 3929   | 8.8 | 20.9 |
| 2785.0 | 7.0  | 55.0 | 43  | 9.1 | 1.78 | 3.14  | 8349  | 783   | 3747   | 8.8 | 20.9 |
| 2786.0 | 7.2  | 55.0 | 45  | 9.1 | 1.78 | 3.28  | 8725  | 760   | 3584   | 8.8 | 20.9 |
| 2787.0 | 5.4  | 55.0 | 45  | 9.1 | 1.89 | 3.47  | 9229  | 1011  | 3451   | 8.8 | 20.9 |
| 2788.0 | 7.1  | 54.9 | 45  | 9.1 | 1.79 | 3.61  | 9615  | 776   | 3319   | 8.8 | 20.9 |
| 2789.0 | 4.1  | 55.7 | 46  | 9.1 | 2.01 | 3.85  | 10282 | 1332  | 3226   | 8.8 | 20.9 |
| 2790.0 | 4.6  | 56.2 | 45  | 9.1 | 1.97 | 4.07  | 10871 | 1189  | 3134   | 8.8 | 20.9 |
| 2791.0 | 6.8  | 54.5 | 45  | 9.1 | 1.80 | 4.22  | 11272 | 808   | 3035   | 8.8 | 20.9 |
| 2792.0 | 14.4 | 54.1 | 45  | 9.1 | 1.51 | 4.29  | 11460 | - 380 | 2925   | 8.8 | 20.9 |
| 2793.0 | 4.6  | 55.0 | 45  | 9.1 | 1.96 | 4.50  | 12052 | 1192  | 2857   | 8.8 | 20.9 |
| 2794.0 | 2.8  | 55.5 | 45  | 9.1 | 2.14 | 4.86  | 13017 | 1941  | 2822   | 8.8 | 20.9 |
| 2795.0 | 2.9  | 55.1 | 45  | 9.2 | 2.10 | 5.20  | 13945 | 1898  | 2788   | 8.8 | 20.9 |
| 2796.0 | 5.9  | 53.8 | 44  | 9.2 | 1.82 | 5.37  | 14399 | 931   | 2722   | 8.8 | 20.9 |
| 2797.0 | 7.7  | 53.1 | 44  | 9.2 | 1.71 | 5.50  | 14742 | 707   | 2654   | 8.8 | 20.9 |
| 2798.0 | 7.0  | 53.2 | 44  | 9.2 | 1.75 | 5.65  | 15122 | 779   | 2592   | 8.8 | 20.9 |
| 2799.0 | 3.1  | 54.1 | 45  | 9.2 | 2.06 | 5.96  | 15980 | 1740  | 2565   | 8.8 | 20.9 |
| 2800.0 | 5.0  | 55.4 | 45  | 9.2 | 1.90 | 6.16  | 16518 | 1087  | 2519   | 8.8 | 20.9 |
| 2801.0 | 5.4  | 54.8 | 45  | 9.2 | 1.87 | 6.35  | 17022 | 1022  | 2474   | 8.8 | 20.9 |
| 2802.0 | 6.3  | 54.5 | 45  | 9.2 | 1.81 | 6.51  | 17453 | 870   | 2427   | 8.8 | 20.9 |
| 2803.0 | 9.4  | 54.9 | 45  | 9.2 | 1.66 | 6.61  | 17740 | 579   | 2375   | 8.8 | 20.9 |
| 2804.0 | 8.7  | 55.0 | 45  | 9.2 | 1.69 | 6.73  | 18048 | 631   | 2327   | 8.8 | 20.9 |
| 2805.0 | 13.6 | 56.0 | 45  | 9.2 | 1.53 | 6.80  | 18246 | 403   | 2275   | 8.8 | 20.9 |
| 2806.0 | 12.4 | 56.5 | 45  | 9.2 | 1.57 | 6.88  | 18461 | 441   | 2227   | 8.8 | 20.9 |
| 2806.3 | 7.1  | 54.8 | 30  | 9.2 | 1.62 | 6.93  | 18538 | 776   | 2216   | 8.8 | 20.9 |



|             |          |             |       |           |                |
|-------------|----------|-------------|-------|-----------|----------------|
| BIT NUMBER  | 12       | IADC CODE   | 4     | INTERVAL  | 2806.3- 2824.0 |
| CHRIS C-20  |          | SIZE        | 8.469 | NOZZLES   | 14 14 13       |
| COST        | 16085.00 | TRIP TIME   | 8.0   | BIT RUN   | 17.7           |
| TOTAL HOURS | 6.66     | TOTAL TURNS | 38355 | CONDITION | TO RO GO.100   |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST | CCOST | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|-------|-------|-----|------|
| 2807.0 | 20.0 | 16.7 | 79  | 9.4 | 1.22 | 0.04  | 167   | 274   | 85824 | 8.8 | 20.9 |
| 2808.0 | 20.0 | 10.0 | 79  | 9.4 | 1.07 | 0.09  | 404   | 274   | 35500 | 8.8 | 20.9 |
| 2808.4 | 20.0 | 10.0 | 78  | 9.4 | 1.07 | 0.11  | 497   | 274   | 28790 | 8.8 | 20.9 |
| 2808.6 | 13.1 | 15.9 | 77  | 9.4 | 1.31 | 0.12  | 568   | 418   | 26323 | 8.8 | 20.9 |
| 2808.8 | 17.1 | 15.6 | 73  | 9.4 | 1.21 | 0.13  | 619   | 319   | 24243 | 8.8 | 20.9 |
| 2809.0 | 24.0 | 11.5 | 73  | 9.4 | 1.04 | 0.14  | 656   | 228   | 22464 | 8.8 | 20.9 |
| 2809.2 | 4.7  | 8.5  | 73  | 9.4 | 1.36 | 0.18  | 841   | 1163  | 20995 | 8.8 | 20.9 |
| 2809.4 | 5.5  | 10.5 | 73  | 9.4 | 1.39 | 0.22  | 1000  | 996   | 19705 | 8.8 | 20.9 |
| 2809.6 | 0.8  | 13.9 | 73  | 9.4 | 2.01 | 0.47  | 2079  | 6775  | 18921 | 8.8 | 20.9 |
| 2809.8 | 3.9  | 16.8 | 73  | 9.4 | 1.66 | 0.52  | 2302  | 1399  | 17920 | 8.8 | 20.9 |
| 2810.0 | 4.9  | 17.5 | 73  | 9.4 | 1.61 | 0.56  | 2481  | 1118  | 17012 | 8.8 | 20.9 |
| 2810.2 | 14.7 | 15.0 | 73  | 9.4 | 1.24 | 0.57  | 2540  | 373   | 16158 | 8.8 | 20.9 |
| 2810.4 | 8.9  | 18.1 | 73  | 9.4 | 1.46 | 0.59  | 2639  | 616   | 15400 | 8.8 | 20.9 |
| 2810.6 | 6.2  | 15.8 | 74  | 9.4 | 1.51 | 0.63  | 2783  | 890   | 14725 | 8.8 | 20.9 |
| 2810.8 | 5.9  | 14.7 | 74  | 9.4 | 1.50 | 0.66  | 2935  | 935   | 14112 | 8.8 | 20.9 |
| 2811.0 | 7.2  | 15.4 | 74  | 9.4 | 1.46 | 0.69  | 3059  | 760   | 13544 | 8.8 | 20.9 |
| 2811.2 | 5.4  | 17.1 | 74  | 9.4 | 1.58 | 0.73  | 3224  | 1019  | 13033 | 8.8 | 20.9 |
| 2811.4 | 5.2  | 16.3 | 74  | 9.4 | 1.57 | 0.76  | 3395  | 1049  | 12563 | 8.8 | 20.9 |
| 2811.6 | 4.7  | 14.8 | 75  | 9.4 | 1.56 | 0.81  | 3585  | 1163  | 12133 | 8.8 | 20.9 |
| 2811.8 | 2.3  | 15.3 | 75  | 9.4 | 1.77 | 0.89  | 3976  | 2373  | 11778 | 8.8 | 20.9 |
| 2812.0 | 4.9  | 15.8 | 76  | 9.4 | 1.58 | 0.93  | 4161  | 1118  | 11404 | 8.8 | 20.9 |
| 2812.2 | 1.9  | 15.3 | 75  | 9.4 | 1.83 | 1.04  | 4645  | 2943  | 11117 | 8.8 | 20.9 |
| 2812.4 | 2.2  | 15.9 | 75  | 9.4 | 1.81 | 1.13  | 5060  | 2532  | 10836 | 8.8 | 20.9 |
| 2812.6 | 2.4  | 15.5 | 93  | 9.4 | 1.83 | 1.22  | 5531  | 2319  | 10565 | 8.8 | 20.9 |
| 2812.8 | 1.4  | 16.2 | 102 | 9.4 | 2.03 | 1.36  | 6417  | 3947  | 10362 | 8.8 | 20.9 |
| 2813.0 | 1.7  | 16.0 | 103 | 9.4 | 1.96 | 1.48  | 7131  | 3171  | 10147 | 8.8 | 20.9 |
| 2813.2 | 2.2  | 16.5 | 103 | 9.4 | 1.91 | 1.57  | 7691  | 2494  | 9925  | 8.8 | 20.9 |
| 2813.4 | 1.9  | 16.5 | 102 | 9.4 | 1.96 | 1.68  | 8342  | 2897  | 9727  | 8.8 | 20.9 |
| 2813.6 | 2.3  | 16.7 | 103 | 9.4 | 1.91 | 1.76  | 8882  | 2403  | 9527  | 8.8 | 20.9 |
| 2813.8 | 2.9  | 14.6 | 103 | 9.4 | 1.78 | 1.83  | 9310  | 1901  | 9323  | 8.8 | 20.9 |
| 2814.0 | 2.5  | 15.3 | 103 | 9.4 | 1.83 | 1.91  | 9795  | 2152  | 9137  | 8.8 | 20.9 |
| 2814.2 | 2.5  | 15.7 | 102 | 9.4 | 1.85 | 1.99  | 10280 | 2175  | 8961  | 8.8 | 20.9 |
| 2814.4 | 2.1  | 16.0 | 76  | 9.4 | 1.83 | 2.09  | 10717 | 2616  | 8804  | 8.8 | 20.9 |
| 2814.6 | 3.0  | 17.6 | 76  | 9.4 | 1.77 | 2.15  | 11025 | 1848  | 8636  | 8.8 | 20.9 |
| 2814.8 | 4.0  | 16.5 | 75  | 9.4 | 1.66 | 2.20  | 11252 | 1376  | 8466  | 8.8 | 20.9 |
| 2815.0 | 2.9  | 16.4 | 76  | 9.4 | 1.74 | 2.27  | 11565 | 1886  | 8314  | 8.8 | 20.9 |
| 2815.2 | 1.5  | 16.5 | 76  | 9.4 | 1.93 | 2.41  | 12164 | 3604  | 8208  | 8.8 | 20.9 |
| 2815.4 | 0.7  | 16.2 | 76  | 9.4 | 2.15 | 2.71  | 13532 | 8251  | 8209  | 8.8 | 20.9 |
| 2815.6 | 0.7  | 15.6 | 98  | 9.4 | 2.19 | 2.99  | 15198 | 7733  | 8199  | 8.8 | 20.9 |
| 2815.8 | 3.2  | 13.8 | 101 | 9.4 | 1.72 | 3.05  | 15574 | 1696  | 8062  | 8.8 | 20.9 |
| 2816.0 | 0.8  | 14.4 | 105 | 9.4 | 2.11 | 3.29  | 17074 | 6524  | 8031  | 8.8 | 20.9 |
| 2816.2 | 1.7  | 14.3 | 106 | 9.4 | 1.92 | 3.41  | 17813 | 3186  | 7933  | 8.8 | 20.9 |
| 2816.4 | 2.4  | 14.6 | 105 | 9.4 | 1.83 | 3.49  | 18327 | 2236  | 7820  | 8.8 | 20.9 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST | CCOST | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|-------|-------|-----|------|
| 2816.6 | 1.9  | 13.9 | 105 | 9.4 | 1.88 | 3.60  | 19002 | 2943  | 7725  | 8.8 | 20.9 |
| 2816.8 | 1.7  | 13.3 | 123 | 9.4 | 1.93 | 3.71  | 19868 | 3209  | 7639  | 8.8 | 20.9 |
| 2817.0 | 5.7  | 11.4 | 103 | 9.4 | 1.50 | 3.75  | 20085 | 958   | 7514  | 8.8 | 20.9 |
| 2817.2 | 2.5  | 12.0 | 103 | 9.4 | 1.73 | 3.83  | 20586 | 2213  | 7417  | 8.8 | 20.9 |
| 2817.4 | 4.8  | 11.2 | 104 | 9.4 | 1.54 | 3.87  | 20848 | 1148  | 7304  | 8.8 | 20.9 |
| 2817.6 | 4.5  | 12.4 | 103 | 9.4 | 1.59 | 3.91  | 21123 | 1217  | 7196  | 8.8 | 20.9 |
| 2817.8 | 2.5  | 12.6 | 104 | 9.4 | 1.75 | 3.99  | 21621 | 2182  | 7109  | 8.8 | 20.9 |
| 2818.0 | 5.4  | 12.7 | 104 | 9.4 | 1.55 | 4.03  | 21853 | 1019  | 7005  | 8.8 | 20.9 |
| 2818.2 | 12.9 | 13.7 | 105 | 9.4 | 1.35 | 4.05  | 21951 | 426   | 6894  | 8.8 | 20.9 |
| 2818.4 | 8.6  | 12.4 | 104 | 9.4 | 1.42 | 4.07  | 22096 | 639   | 6791  | 8.8 | 20.9 |
| 2818.6 | 6.6  | 14.5 | 104 | 9.4 | 1.55 | 4.10  | 22285 | 829   | 6694  | 8.8 | 20.9 |
| 2818.8 | 7.1  | 13.7 | 105 | 9.4 | 1.51 | 4.13  | 22463 | 776   | 6599  | 8.8 | 20.9 |
| 2819.0 | 1.1  | 13.9 | 104 | 9.4 | 2.02 | 4.31  | 23606 | 5034  | 6575  | 8.8 | 20.9 |
| 2819.2 | 1.3  | 13.9 | 101 | 9.4 | 1.97 | 4.47  | 24570 | 4357  | 6540  | 8.8 | 20.9 |
| 2819.4 | 2.9  | 13.8 | 105 | 9.4 | 1.75 | 4.54  | 25001 | 1863  | 6469  | 8.8 | 20.9 |
| 2819.6 | 2.9  | 16.0 | 109 | 9.4 | 1.84 | 4.61  | 25453 | 1893  | 6400  | 8.8 | 20.9 |
| 2819.8 | 2.4  | 16.0 | 101 | 9.4 | 1.87 | 4.69  | 25965 | 2319  | 6340  | 8.8 | 20.9 |
| 2820.0 | 1.4  | 16.8 | 104 | 9.4 | 2.06 | 4.84  | 26873 | 4000  | 6306  | 8.8 | 20.9 |
| 2820.2 | 5.3  | 16.7 | 107 | 9.4 | 1.68 | 4.88  | 27117 | 1034  | 6230  | 8.8 | 20.9 |
| 2820.4 | 8.6  | 15.9 | 114 | 9.4 | 1.54 | 4.90  | 27277 | 639   | 6150  | 8.8 | 20.9 |
| 2820.6 | 6.1  | 15.9 | 116 | 9.4 | 1.64 | 4.93  | 27506 | 897   | 6077  | 8.8 | 20.9 |
| 2820.8 | 4.4  | 16.0 | 116 | 9.4 | 1.74 | 4.98  | 27823 | 1247  | 6010  | 8.8 | 20.9 |
| 2821.0 | 2.4  | 16.5 | 104 | 9.4 | 1.90 | 5.06  | 28354 | 2327  | 5960  | 8.8 | 20.9 |
| 2821.2 | 2.1  | 16.3 | 105 | 9.4 | 1.92 | 5.16  | 28948 | 2578  | 5915  | 8.8 | 20.9 |
| 2821.4 | 12.9 | 15.5 | 114 | 9.4 | 1.42 | 5.17  | 29054 | 426   | 5842  | 8.8 | 20.9 |
| 2821.6 | 5.3  | 17.3 | 123 | 9.4 | 1.73 | 5.21  | 29332 | 1027  | 5779  | 8.8 | 20.9 |
| 2821.8 | 2.5  | 17.0 | 120 | 9.4 | 1.94 | 5.29  | 29913 | 2213  | 5733  | 8.8 | 20.9 |
| 2822.0 | 1.9  | 17.3 | 117 | 9.4 | 2.01 | 5.40  | 30634 | 2821  | 5696  | 8.8 | 20.9 |
| 2822.2 | 1.1  | 15.3 | 106 | 9.4 | 2.09 | 5.59  | 31841 | 5201  | 5690  | 8.8 | 20.9 |
| 2822.4 | 2.5  | 16.1 | 102 | 9.4 | 1.87 | 5.67  | 32339 | 2228  | 5647  | 8.8 | 20.9 |
| 2822.6 | 1.2  | 14.3 | 101 | 9.4 | 1.99 | 5.83  | 33318 | 4418  | 5632  | 8.8 | 20.9 |
| 2822.8 | 1.7  | 13.1 | 101 | 9.4 | 1.87 | 5.95  | 34050 | 3293  | 5603  | 8.8 | 20.9 |
| 2823.0 | 2.2  | 13.7 | 103 | 9.4 | 1.82 | 6.04  | 34598 | 2441  | 5565  | 8.8 | 20.9 |
| 2823.2 | 1.6  | 14.1 | 106 | 9.4 | 1.92 | 6.16  | 35372 | 3323  | 5539  | 8.8 | 20.9 |
| 2823.4 | 0.8  | 15.0 | 96  | 9.4 | 2.11 | 6.40  | 36761 | 6578  | 5551  | 8.8 | 20.9 |
| 2823.6 | 2.0  | 14.6 | 104 | 9.4 | 1.88 | 6.50  | 37385 | 2738  | 5519  | 8.8 | 20.9 |
| 2823.8 | 3.0  | 14.1 | 106 | 9.4 | 1.76 | 6.57  | 37816 | 1855  | 5477  | 8.8 | 20.9 |
| 2824.0 | 2.3  | 15.0 | 102 | 9.4 | 1.86 | 6.66  | 38355 | 2411  | 5442  | 8.8 | 20.9 |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 13      | IADC CODE   | 537    | INTERVAL  | 2824.0- 2953.4 |
| HTC J33     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 6637.00 | TRIP TIME   | 8.3    | BIT RUN   | 129.4          |
| TOTAL HOURS | 28.13   | TOTAL TURNS | 90901  | CONDITION | T3 B4 G0.063   |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST | CCOST | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|-------|-------|-----|------|
| 2825.0 | 24.7 | 38.2 | 50  | 9.4 | 1.17 | 0.04  | 122   | 222   | 52302 | 8.8 | 20.9 |
| 2826.0 | 6.9  | 33.9 | 50  | 9.4 | 1.53 | 0.18  | 554   | 789   | 26545 | 8.8 | 20.9 |
| 2827.0 | 5.6  | 43.2 | 51  | 9.4 | 1.72 | 0.36  | 1093  | 972   | 18021 | 8.8 | 20.9 |
| 2828.0 | 4.4  | 48.1 | 51  | 9.4 | 1.87 | 0.59  | 1791  | 1253  | 13829 | 8.8 | 20.9 |
| 2829.0 | 5.7  | 48.8 | 51  | 9.4 | 1.78 | 0.77  | 2321  | 954   | 11254 | 8.8 | 20.9 |
| 2830.0 | 5.2  | 48.4 | 51  | 9.4 | 1.81 | 0.96  | 2910  | 1060  | 9555  | 8.8 | 20.9 |
| 2831.0 | 5.4  | 49.9 | 51  | 9.5 | 1.80 | 1.14  | 3479  | 1014  | 8335  | 8.8 | 20.9 |
| 2832.0 | 6.3  | 49.9 | 52  | 9.5 | 1.75 | 1.30  | 3973  | 868   | 7402  | 8.8 | 20.9 |
| 2833.0 | 8.9  | 49.9 | 52  | 9.5 | 1.63 | 1.42  | 4322  | 616   | 6648  | 8.8 | 20.9 |
| 2834.0 | 8.7  | 51.5 | 52  | 9.5 | 1.65 | 1.53  | 4679  | 630   | 6046  | 8.8 | 20.9 |
| 2835.0 | 12.4 | 48.4 | 51  | 9.5 | 1.49 | 1.61  | 4929  | 443   | 5536  | 8.8 | 20.9 |
| 2836.0 | 6.6  | 56.9 | 57  | 9.5 | 1.84 | 1.76  | 5443  | 827   | 5144  | 8.8 | 20.9 |
| 2837.0 | 14.8 | 52.6 | 54  | 9.5 | 1.49 | 1.83  | 5662  | 371   | 4777  | 8.8 | 20.9 |
| 2838.0 | 8.7  | 51.6 | 55  | 9.5 | 1.67 | 1.94  | 6040  | 627   | 4480  | 8.8 | 20.9 |
| 2839.0 | 5.5  | 50.3 | 54  | 9.5 | 1.81 | 2.12  | 6627  | 989   | 4248  | 8.8 | 20.9 |
| 2840.0 | 6.5  | 48.3 | 54  | 9.5 | 1.73 | 2.28  | 7127  | 843   | 4035  | 8.8 | 20.9 |
| 2841.0 | 10.1 | 48.2 | 54  | 9.5 | 1.58 | 2.38  | 7448  | 540   | 3829  | 8.8 | 20.9 |
| 2842.0 | 14.6 | 48.6 | 54  | 9.5 | 1.46 | 2.45  | 7669  | 374   | 3637  | 8.8 | 20.9 |
| 2843.0 | 10.9 | 50.7 | 54  | 9.5 | 1.58 | 2.54  | 7967  | 503   | 3472  | 8.8 | 20.9 |
| 2844.0 | 13.2 | 50.5 | 54  | 9.5 | 1.51 | 2.61  | 8211  | 414   | 3319  | 8.8 | 20.9 |
| 2845.0 | 6.0  | 52.0 | 55  | 9.5 | 1.81 | 2.78  | 8760  | 911   | 3205  | 8.8 | 20.9 |
| 2846.0 | 8.6  | 50.3 | 55  | 9.5 | 1.67 | 2.90  | 9146  | 640   | 3088  | 8.8 | 20.9 |
| 2847.0 | 11.8 | 48.5 | 55  | 9.5 | 1.53 | 2.98  | 9424  | 462   | 2974  | 8.8 | 20.9 |
| 2848.0 | 8.4  | 49.6 | 55  | 9.5 | 1.67 | 3.10  | 9818  | 652   | 2877  | 8.8 | 20.9 |
| 2849.0 | 5.7  | 50.3 | 55  | 9.5 | 1.81 | 3.28  | 10397 | 961   | 2801  | 8.8 | 20.9 |
| 2850.0 | 5.3  | 51.4 | 55  | 9.5 | 1.85 | 3.46  | 11016 | 1028  | 2732  | 8.8 | 20.9 |
| 2851.0 | 8.3  | 50.8 | 55  | 9.5 | 1.68 | 3.58  | 11413 | 662   | 2656  | 8.8 | 20.9 |
| 2852.0 | 10.4 | 49.5 | 54  | 9.5 | 1.59 | 3.68  | 11726 | 526   | 2580  | 8.8 | 20.9 |
| 2853.0 | 10.2 | 48.3 | 55  | 9.5 | 1.58 | 3.78  | 12048 | 535   | 2509  | 8.8 | 20.9 |
| 2854.0 | 4.3  | 51.1 | 55  | 9.5 | 1.93 | 4.01  | 12824 | 1288  | 2468  | 8.8 | 20.9 |
| 2855.0 | 5.6  | 51.7 | 57  | 9.4 | 1.86 | 4.19  | 13427 | 970   | 2420  | 8.8 | 20.9 |
| 2856.0 | 5.1  | 51.5 | 57  | 9.4 | 1.89 | 4.39  | 14097 | 1077  | 2378  | 8.8 | 20.9 |
| 2857.0 | 4.9  | 50.3 | 57  | 9.4 | 1.89 | 4.59  | 14792 | 1116  | 2340  | 8.8 | 20.9 |
| 2858.0 | 4.6  | 49.6 | 57  | 9.4 | 1.91 | 4.81  | 15540 | 1200  | 2306  | 8.8 | 20.9 |
| 2859.0 | 3.8  | 50.0 | 57  | 9.4 | 1.98 | 5.07  | 16441 | 1443  | 2282  | 8.8 | 21.0 |
| 2860.0 | 5.5  | 50.7 | 57  | 9.4 | 1.86 | 5.26  | 17066 | 1002  | 2246  | 8.8 | 21.0 |
| 2861.0 | 4.3  | 51.4 | 57  | 9.4 | 1.95 | 5.49  | 17866 | 1284  | 2220  | 8.8 | 21.0 |
| 2862.0 | 5.1  | 52.2 | 57  | 9.4 | 1.90 | 5.69  | 18533 | 1069  | 2190  | 8.8 | 21.0 |
| 2863.0 | 3.8  | 49.6 | 56  | 9.4 | 1.97 | 5.95  | 19422 | 1443  | 2171  | 8.8 | 21.0 |
| 2864.0 | 3.6  | 55.0 | 55  | 9.4 | 2.05 | 6.23  | 20344 | 1531  | 2155  | 8.8 | 21.0 |
| 2865.0 | 3.9  | 53.0 | 45  | 9.4 | 1.92 | 6.49  | 21033 | 1396  | 2136  | 8.8 | 21.0 |
| 2866.0 | 3.6  | 55.2 | 45  | 9.4 | 1.98 | 6.77  | 21786 | 1535  | 2122  | 8.8 | 21.0 |
| 2867.0 | 3.5  | 54.2 | 44  | 9.4 | 1.97 | 7.05  | 22539 | 1556  | 2109  | 8.8 | 21.0 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | URNS  | ICOST | CCOST | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|-------|-------|-----|------|
| 2868.0 | 3.1  | 55.8 | 44  | 9.4 | 2.04 | 7.37  | 23395 | 1767  | 2101  | 8.8 | 21.0 |
| 2869.0 | 3.2  | 56.3 | 44  | 9.4 | 2.03 | 7.68  | 24216 | 1693  | 2092  | 8.8 | 21.0 |
| 2870.0 | 3.6  | 55.7 | 44  | 9.4 | 1.98 | 7.96  | 24948 | 1513  | 2079  | 8.8 | 21.0 |
| 2871.0 | 3.1  | 54.0 | 44  | 9.4 | 2.01 | 8.28  | 25802 | 1769  | 2073  | 8.8 | 21.0 |
| 2872.0 | 3.3  | 56.0 | 45  | 9.4 | 2.02 | 8.58  | 26610 | 1636  | 2064  | 8.8 | 21.0 |
| 2873.0 | 3.4  | 54.5 | 45  | 9.4 | 2.00 | 8.88  | 27420 | 1624  | 2055  | 8.8 | 21.0 |
| 2874.0 | 3.8  | 55.8 | 47  | 9.4 | 1.99 | 9.14  | 28147 | 1427  | 2042  | 8.8 | 21.0 |
| 2875.0 | 2.6  | 57.1 | 47  | 9.3 | 2.16 | 9.53  | 29234 | 2129  | 2044  | 8.8 | 21.0 |
| 2876.0 | 3.0  | 57.4 | 46  | 9.3 | 2.11 | 9.86  | 30174 | 1846  | 2040  | 8.8 | 21.0 |
| 2877.0 | 3.1  | 54.7 | 47  | 9.3 | 2.07 | 10.19 | 31080 | 1775  | 2035  | 8.8 | 21.0 |
| 2878.0 | 2.8  | 53.5 | 44  | 9.3 | 2.06 | 10.54 | 32014 | 1936  | 2033  | 8.8 | 21.0 |
| 2879.0 | 2.8  | 53.1 | 44  | 9.3 | 2.06 | 10.90 | 32960 | 1969  | 2032  | 8.8 | 21.0 |
| 2880.0 | 2.5  | 52.3 | 44  | 9.3 | 2.09 | 11.30 | 34006 | 2175  | 2035  | 8.8 | 21.0 |
| 2881.0 | 2.5  | 50.2 | 44  | 9.3 | 2.05 | 11.70 | 35045 | 2179  | 2037  | 8.8 | 21.0 |
| 2882.0 | 2.7  | 54.2 | 44  | 9.3 | 2.08 | 12.07 | 36009 | 2020  | 2037  | 8.8 | 21.0 |
| 2883.0 | 3.0  | 53.1 | 57  | 9.3 | 2.13 | 12.40 | 37146 | 1823  | 2033  | 8.8 | 21.0 |
| 2884.0 | 3.4  | 56.6 | 66  | 9.3 | 2.18 | 12.69 | 38291 | 1588  | 2026  | 8.8 | 21.0 |
| 2885.0 | 14.5 | 55.8 | 66  | 9.3 | 1.64 | 12.76 | 38566 | 379   | 1999  | 8.8 | 21.0 |
| 2886.0 | 27.9 | 53.8 | 66  | 9.3 | 1.37 | 12.79 | 38707 | 196   | 1970  | 8.8 | 21.0 |
| 2887.0 | 21.3 | 54.5 | 55  | 9.3 | 1.42 | 12.84 | 38863 | 257   | 1943  | 8.8 | 21.0 |
| 2888.0 | 5.7  | 56.8 | 63  | 9.3 | 1.98 | 13.02 | 39525 | 960   | 1927  | 8.8 | 21.0 |
| 2889.0 | 7.5  | 57.0 | 64  | 9.3 | 1.88 | 13.15 | 40039 | 735   | 1909  | 8.8 | 21.0 |
| 2890.0 | 4.9  | 58.8 | 65  | 9.3 | 2.06 | 13.35 | 40826 | 1109  | 1897  | 8.8 | 21.0 |
| 2891.0 | 12.9 | 55.7 | 51  | 9.3 | 1.58 | 13.43 | 41064 | 426   | 1875  | 8.8 | 21.0 |
| 2892.0 | 18.4 | 53.9 | 65  | 9.3 | 1.53 | 13.48 | 41277 | 298   | 1852  | 8.8 | 21.0 |
| 2893.0 | 12.8 | 55.9 | 63  | 9.3 | 1.68 | 13.56 | 41575 | 428   | 1831  | 8.9 | 21.0 |
| 2894.0 | 21.9 | 55.0 | 65  | 9.2 | 1.49 | 13.61 | 41753 | 250   | 1808  | 9.0 | 20.9 |
| 2895.0 | 23.0 | 55.0 | 65  | 9.2 | 1.47 | 13.65 | 41923 | 238   | 1786  | 9.0 | 20.9 |
| 2896.0 | 15.0 | 55.0 | 65  | 9.2 | 1.63 | 13.72 | 42183 | 365   | 1766  | 9.0 | 20.9 |
| 2897.0 | 15.2 | 51.4 | 50  | 9.3 | 1.48 | 13.78 | 42382 | 360   | 1747  | 9.0 | 20.9 |
| 2898.0 | 15.7 | 53.2 | 51  | 9.3 | 1.49 | 13.85 | 42576 | 348   | 1728  | 9.0 | 20.9 |
| 2899.0 | 7.7  | 54.0 | 51  | 9.3 | 1.75 | 13.98 | 42973 | 712   | 1715  | 9.0 | 20.9 |
| 2900.0 | 5.8  | 51.8 | 50  | 9.2 | 1.84 | 14.15 | 43492 | 945   | 1705  | 9.0 | 20.9 |
| 2901.0 | 13.9 | 51.2 | 54  | 9.2 | 1.54 | 14.22 | 43723 | 393   | 1688  | 9.0 | 20.9 |
| 2902.0 | 6.5  | 51.4 | 56  | 9.2 | 1.85 | 14.38 | 44246 | 849   | 1677  | 9.0 | 20.9 |
| 2903.0 | 3.8  | 52.0 | 58  | 9.2 | 2.06 | 14.64 | 45163 | 1448  | 1674  | 9.0 | 20.9 |
| 2904.0 | 4.2  | 53.3 | 58  | 9.2 | 2.03 | 14.88 | 45986 | 1296  | 1669  | 9.0 | 20.9 |
| 2905.0 | 3.1  | 53.5 | 58  | 9.2 | 2.15 | 15.20 | 47115 | 1770  | 1670  | 9.0 | 20.9 |
| 2906.0 | 3.0  | 54.3 | 51  | 9.2 | 2.12 | 15.53 | 48114 | 1805  | 1672  | 9.0 | 20.9 |
| 2907.0 | 5.1  | 56.0 | 49  | 9.2 | 1.93 | 15.73 | 48686 | 1075  | 1665  | 9.0 | 20.9 |
| 2908.0 | 5.0  | 55.9 | 49  | 9.2 | 1.94 | 15.93 | 49275 | 1103  | 1658  | 9.0 | 20.9 |
| 2909.0 | 4.8  | 55.4 | 48  | 9.2 | 1.95 | 16.14 | 49878 | 1150  | 1652  | 9.0 | 20.9 |
| 2910.0 | 2.5  | 54.7 | 48  | 9.2 | 2.18 | 16.54 | 51029 | 2169  | 1658  | 9.0 | 20.9 |
| 2911.0 | 4.3  | 62.9 | 50  | 9.2 | 2.09 | 16.77 | 51724 | 1264  | 1654  | 9.0 | 21.0 |
| 2912.0 | 3.3  | 57.6 | 50  | 9.2 | 2.13 | 17.07 | 52639 | 1655  | 1654  | 9.0 | 21.0 |
| 2913.0 | 3.7  | 54.3 | 47  | 9.2 | 2.01 | 17.34 | 53392 | 1462  | 1652  | 9.0 | 21.0 |
| 2914.0 | 4.7  | 52.8 | 50  | 9.2 | 1.93 | 17.55 | 54028 | 1168  | 1646  | 9.0 | 21.0 |
| 2915.0 | 4.8  | 52.6 | 55  | 9.2 | 1.96 | 17.76 | 54714 | 1144  | 1641  | 9.0 | 21.0 |
| 2916.0 | 3.9  | 53.6 | 55  | 9.2 | 2.05 | 18.02 | 55572 | 1420  | 1638  | 9.0 | 21.0 |
| 2917.0 | 3.8  | 52.5 | 55  | 9.2 | 2.04 | 18.28 | 56437 | 1428  | 1636  | 9.0 | 21.0 |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST | CCOST | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|-------|-------|-----|------|
| 2918.0 | 3.8  | 52.6 | 55  | 9.2 | 2.05 | 18.54 | 57313 | 1460  | 1634  | 9.0 | 21.0 |
| 2919.0 | 4.4  | 54.6 | 55  | 9.2 | 2.02 | 18.77 | 58069 | 1252  | 1630  | 9.0 | 21.0 |
| 2920.0 | 3.7  | 54.0 | 55  | 9.2 | 2.07 | 19.04 | 58955 | 1471  | 1628  | 9.0 | 21.0 |
| 2921.0 | 3.7  | 52.6 | 53  | 9.2 | 2.04 | 19.31 | 59811 | 1462  | 1627  | 9.0 | 21.0 |
| 2922.0 | 3.8  | 53.6 | 53  | 9.2 | 2.05 | 19.57 | 60657 | 1452  | 1625  | 9.0 | 21.0 |
| 2923.0 | 3.7  | 55.9 | 52  | 9.2 | 2.08 | 19.84 | 61502 | 1483  | 1624  | 9.0 | 21.0 |
| 2924.0 | 3.8  | 54.6 | 51  | 9.2 | 2.05 | 20.11 | 62315 | 1454  | 1622  | 9.0 | 21.0 |
| 2925.0 | 2.9  | 55.3 | 51  | 9.2 | 2.16 | 20.46 | 63383 | 1912  | 1625  | 9.0 | 21.0 |
| 2926.0 | 2.9  | 54.1 | 52  | 9.2 | 2.14 | 20.80 | 64457 | 1889  | 1627  | 9.0 | 21.0 |
| 2927.0 | 2.9  | 55.4 | 48  | 9.2 | 2.13 | 21.15 | 65458 | 1889  | 1630  | 9.0 | 21.0 |
| 2928.0 | 2.7  | 55.0 | 48  | 9.2 | 2.15 | 21.52 | 66526 | 2042  | 1634  | 9.0 | 21.0 |
| 2929.0 | 3.4  | 55.4 | 55  | 9.2 | 2.12 | 21.82 | 67487 | 1604  | 1634  | 9.0 | 21.0 |
| 2930.0 | 2.9  | 55.8 | 54  | 9.2 | 2.18 | 22.16 | 68601 | 1893  | 1636  | 9.0 | 21.0 |
| 2931.0 | 4.5  | 58.4 | 51  | 9.2 | 2.03 | 22.38 | 69281 | 1212  | 1632  | 9.1 | 20.9 |
| 2932.0 | 4.9  | 56.4 | 52  | 9.2 | 1.98 | 22.59 | 69926 | 1127  | 1627  | 9.1 | 20.9 |
| 2933.0 | 5.1  | 54.9 | 52  | 9.2 | 1.95 | 22.79 | 70547 | 1083  | 1622  | 9.1 | 20.9 |
| 2934.0 | 4.4  | 54.3 | 52  | 9.2 | 1.99 | 23.01 | 71245 | 1233  | 1619  | 9.1 | 20.9 |
| 2935.0 | 4.8  | 54.4 | 52  | 9.2 | 1.96 | 23.22 | 71899 | 1150  | 1615  | 9.1 | 20.9 |
| 2936.0 | 6.9  | 55.1 | 54  | 9.2 | 1.85 | 23.37 | 72373 | 795   | 1607  | 9.1 | 20.9 |
| 2937.0 | 12.4 | 52.1 | 51  | 9.2 | 1.58 | 23.45 | 72620 | 443   | 1597  | 9.1 | 20.9 |
| 2938.0 | 6.2  | 57.1 | 52  | 9.2 | 1.90 | 23.61 | 73121 | 881   | 1591  | 9.1 | 21.0 |
| 2939.0 | 3.8  | 60.3 | 61  | 9.2 | 2.18 | 23.87 | 74083 | 1442  | 1589  | 9.1 | 21.0 |
| 2940.0 | 5.8  | 55.0 | 65  | 9.2 | 1.98 | 24.05 | 74758 | 951   | 1584  | 9.1 | 21.0 |
| 2941.0 | 5.8  | 54.8 | 66  | 9.2 | 1.98 | 24.22 | 75440 | 946   | 1578  | 9.1 | 21.0 |
| 2942.0 | 6.7  | 48.9 | 66  | 9.2 | 1.86 | 24.37 | 76030 | 817   | 1572  | 9.1 | 21.0 |
| 2943.0 | 5.4  | 52.6 | 66  | 9.2 | 1.98 | 24.55 | 76756 | 1008  | 1567  | 9.1 | 21.0 |
| 2944.0 | 7.7  | 52.5 | 66  | 9.2 | 1.85 | 24.68 | 77264 | 707   | 1560  | 9.1 | 21.0 |
| 2945.0 | 4.9  | 51.8 | 66  | 9.2 | 2.01 | 24.89 | 78067 | 1119  | 1556  | 9.1 | 21.0 |
| 2946.0 | 7.1  | 53.6 | 66  | 9.2 | 1.89 | 25.03 | 78620 | 770   | 1550  | 9.1 | 21.0 |
| 2947.0 | 4.0  | 52.8 | 63  | 9.2 | 2.08 | 25.28 | 79580 | 1381  | 1549  | 9.1 | 21.0 |
| 2948.0 | 2.1  | 51.6 | 65  | 9.2 | 2.32 | 25.76 | 81476 | 2649  | 1557  | 9.1 | 21.0 |
| 2949.0 | 3.6  | 50.4 | 65  | 9.2 | 2.10 | 26.04 | 82564 | 1535  | 1557  | 9.1 | 21.0 |
| 2950.0 | 2.2  | 50.3 | 67  | 9.2 | 2.28 | 26.50 | 84397 | 2512  | 1565  | 9.1 | 21.0 |
| 2951.0 | 2.2  | 50.7 | 67  | 9.2 | 2.28 | 26.95 | 86189 | 2442  | 1572  | 9.1 | 21.0 |
| 2952.0 | 2.1  | 51.5 | 67  | 9.2 | 2.31 | 27.42 | 88064 | 2563  | 1580  | 9.1 | 21.0 |
| 2953.0 | 2.0  | 52.7 | 67  | 9.2 | 2.35 | 27.91 | 90048 | 2721  | 1588  | 9.1 | 21.0 |
| 2953.4 | 1.9  | 52.9 | 67  | 9.2 | 2.38 | 28.13 | 90901 | 2920  | 1592  | 9.1 | 21.0 |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 14      | IADC CODE   | 537    | INTERVAL  | 2953.4- 3085.0 |
| HTC J33     |         | SIZE        | 12.250 | NOZZLES   | 16 16 18       |
| COST        | 6637.00 | TRIP TIME   | 8.5    | BIT RUN   | 131.6          |
| TOTAL HOURS | 34.10   | TOTAL TURNS | 111908 | CONDITION | T3 B4 G0.125   |

| DEPTH  | ROP  | WOB  | RPM | MW  | "d"c | HOURS | TURNS | ICOST | CCOST | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|-------|-------|-----|------|
| 2954.0 | 27.3 | 48.5 | 34  | 9.3 | 1.10 | 0.02  | 45    | 200   | 88824 | 9.1 | 21.0 |
| 2955.0 | 35.0 | 48.0 | 50  | 9.3 | 1.15 | 0.05  | 131   | 156   | 33407 | 9.1 | 21.0 |
| 2956.0 | 4.1  | 45.0 | 54  | 9.3 | 1.88 | 0.29  | 910   | 1324  | 21067 | 9.1 | 21.0 |
| 2957.0 | 3.0  | 43.9 | 55  | 9.3 | 1.98 | 0.62  | 1988  | 1804  | 15716 | 9.1 | 21.0 |
| 2958.0 | 3.1  | 43.3 | 55  | 9.3 | 1.96 | 0.94  | 3040  | 1740  | 12678 | 9.1 | 21.0 |
| 2959.0 | 3.8  | 43.0 | 58  | 9.3 | 1.92 | 1.20  | 3965  | 1445  | 10672 | 9.1 | 21.0 |
| 2960.0 | 3.5  | 46.4 | 57  | 9.3 | 1.98 | 1.49  | 4938  | 1550  | 9290  | 9.1 | 21.0 |
| 2961.0 | 3.8  | 47.8 | 57  | 9.3 | 1.97 | 1.75  | 5832  | 1427  | 8255  | 9.1 | 21.0 |
| 2962.0 | 3.8  | 49.0 | 57  | 9.3 | 1.99 | 2.01  | 6736  | 1446  | 7463  | 9.1 | 21.0 |
| 2963.0 | 3.8  | 47.9 | 56  | 9.3 | 1.97 | 2.28  | 7621  | 1454  | 6837  | 9.1 | 21.0 |
| 2964.0 | 3.2  | 47.0 | 54  | 9.3 | 2.00 | 2.59  | 8629  | 1690  | 6352  | 9.1 | 21.0 |
| 2965.0 | 3.9  | 46.6 | 55  | 9.3 | 1.93 | 2.84  | 9459  | 1389  | 5924  | 9.1 | 21.0 |
| 2966.0 | 3.7  | 48.3 | 55  | 9.3 | 1.97 | 3.11  | 10341 | 1475  | 5571  | 9.1 | 21.0 |
| 2967.0 | 2.7  | 50.3 | 54  | 9.3 | 2.11 | 3.48  | 11560 | 2056  | 5312  | 9.1 | 21.0 |
| 2968.0 | 2.6  | 51.6 | 52  | 9.3 | 2.12 | 3.86  | 12736 | 2071  | 5090  | 9.1 | 21.0 |
| 2969.0 | 4.1  | 50.7 | 52  | 9.3 | 1.95 | 4.11  | 13497 | 1347  | 4851  | 9.1 | 21.0 |
| 2970.0 | 4.0  | 51.7 | 51  | 9.3 | 1.97 | 4.36  | 14277 | 1382  | 4642  | 9.1 | 21.0 |
| 2971.0 | 4.7  | 50.7 | 51  | 9.3 | 1.90 | 4.58  | 14936 | 1176  | 4445  | 9.1 | 21.0 |
| 2972.0 | 4.3  | 49.4 | 52  | 9.3 | 1.92 | 4.81  | 15660 | 1279  | 4274  | 9.1 | 21.0 |
| 2973.0 | 4.0  | 49.9 | 52  | 9.3 | 1.95 | 5.06  | 16435 | 1361  | 4126  | 9.1 | 21.0 |
| 2974.0 | 4.6  | 50.1 | 52  | 9.3 | 1.90 | 5.28  | 17114 | 1200  | 3984  | 9.1 | 21.0 |
| 2975.0 | 4.6  | 51.1 | 52  | 9.3 | 1.91 | 5.49  | 17787 | 1189  | 3854  | 9.1 | 21.0 |
| 2976.0 | 3.9  | 54.0 | 52  | 9.3 | 2.01 | 5.75  | 18593 | 1413  | 3746  | 9.1 | 21.0 |
| 2977.0 | 4.1  | 49.6 | 55  | 9.3 | 1.96 | 6.00  | 19407 | 1347  | 3645  | 9.1 | 21.0 |
| 2978.0 | 4.1  | 49.0 | 55  | 9.3 | 1.95 | 6.24  | 20209 | 1320  | 3550  | 9.1 | 21.0 |
| 2979.0 | 4.0  | 48.2 | 55  | 9.3 | 1.95 | 6.49  | 21045 | 1376  | 3465  | 9.1 | 21.0 |
| 2980.0 | 4.5  | 49.4 | 55  | 9.3 | 1.92 | 6.71  | 21777 | 1209  | 3380  | 9.1 | 21.0 |
| 2981.0 | 5.3  | 48.4 | 55  | 9.3 | 1.85 | 6.90  | 22400 | 1034  | 3295  | 9.2 | 21.0 |
| 2982.0 | 4.2  | 48.5 | 55  | 9.3 | 1.93 | 7.14  | 23186 | 1299  | 3226  | 9.2 | 21.0 |
| 2983.0 | 4.6  | 47.9 | 55  | 9.3 | 1.90 | 7.36  | 23908 | 1203  | 3157  | 9.2 | 21.0 |
| 2984.0 | 4.3  | 47.6 | 55  | 9.3 | 1.91 | 7.59  | 24671 | 1267  | 3096  | 9.2 | 21.0 |
| 2985.0 | 4.3  | 47.8 | 55  | 9.3 | 1.92 | 7.82  | 25438 | 1274  | 3038  | 9.2 | 21.0 |
| 2986.0 | 4.1  | 49.9 | 50  | 9.3 | 1.92 | 8.06  | 26166 | 1331  | 2986  | 9.2 | 21.0 |
| 2987.0 | 4.5  | 50.0 | 55  | 9.3 | 1.92 | 8.28  | 26887 | 1205  | 2933  | 9.2 | 21.0 |
| 2988.0 | 4.1  | 52.1 | 55  | 9.3 | 1.99 | 8.53  | 27689 | 1335  | 2886  | 9.2 | 21.0 |
| 2989.0 | 5.0  | 53.3 | 54  | 9.3 | 1.93 | 8.73  | 28345 | 1101  | 2836  | 9.2 | 21.0 |
| 2990.0 | 4.3  | 51.8 | 55  | 9.3 | 1.96 | 8.96  | 29106 | 1265  | 2793  | 9.2 | 21.0 |
| 2991.0 | 4.3  | 52.2 | 55  | 9.3 | 1.97 | 9.19  | 29864 | 1261  | 2753  | 9.2 | 21.0 |
| 2992.0 | 4.4  | 51.8 | 55  | 9.3 | 1.95 | 9.42  | 30612 | 1249  | 2714  | 9.2 | 21.0 |
| 2993.0 | 4.7  | 52.9 | 54  | 9.3 | 1.94 | 9.63  | 31306 | 1163  | 2674  | 9.2 | 21.0 |
| 2994.0 | 4.5  | 52.4 | 55  | 9.3 | 1.96 | 9.86  | 32041 | 1226  | 2639  | 9.2 | 21.0 |
| 2995.0 | 4.5  | 51.5 | 54  | 9.4 | 1.93 | 10.08 | 32759 | 1208  | 2604  | 9.2 | 21.0 |
| 2996.0 | 4.2  | 52.4 | 54  | 9.4 | 1.96 | 10.32 | 33537 | 1316  | 2574  | 9.2 | 21.0 |

| DEPTH  | ROP  | WOR  | RPM | MW  | "d"r | HOURS | URNS  | ICOST | CCOST | PP  | FG   |
|--------|------|------|-----|-----|------|-------|-------|-------|-------|-----|------|
| 2997.0 | 3.7  | 52.6 | 54  | 9.4 | 2.00 | 10.59 | 34411 | 1471  | 2549  | 9.2 | 21.0 |
| 2998.0 | 3.9  | 52.7 | 54  | 9.4 | 1.99 | 10.84 | 35251 | 1410  | 2523  | 9.2 | 21.0 |
| 2999.0 | 3.3  | 51.7 | 54  | 9.5 | 2.02 | 11.14 | 36231 | 1641  | 2504  | 9.2 | 21.0 |
| 3000.0 | 3.6  | 52.1 | 54  | 9.5 | 1.99 | 11.42 | 37142 | 1525  | 2483  | 9.2 | 21.0 |
| 3001.0 | 4.2  | 50.2 | 55  | 9.5 | 1.91 | 11.66 | 37917 | 1288  | 2458  | 9.2 | 21.0 |
| 3002.0 | 3.2  | 49.7 | 55  | 9.5 | 2.00 | 11.97 | 38950 | 1712  | 2442  | 9.2 | 21.0 |
| 3003.0 | 3.3  | 49.7 | 55  | 9.5 | 1.99 | 12.27 | 39952 | 1671  | 2427  | 9.2 | 21.0 |
| 3004.0 | 3.1  | 49.5 | 55  | 9.5 | 2.01 | 12.59 | 41003 | 1749  | 2414  | 9.2 | 21.0 |
| 3005.0 | 2.9  | 54.8 | 55  | 9.5 | 2.11 | 12.94 | 42149 | 1895  | 2403  | 9.2 | 21.0 |
| 3006.0 | 3.0  | 55.6 | 55  | 9.5 | 2.11 | 13.27 | 43253 | 1823  | 2392  | 9.2 | 21.0 |
| 3007.0 | 2.5  | 51.0 | 55  | 9.5 | 2.11 | 13.67 | 44583 | 2201  | 2389  | 9.2 | 21.0 |
| 3008.0 | 3.4  | 50.3 | 55  | 9.5 | 1.99 | 13.97 | 45548 | 1600  | 2374  | 9.2 | 21.0 |
| 3009.0 | 3.0  | 50.8 | 55  | 9.5 | 2.03 | 14.30 | 46627 | 1796  | 2364  | 9.2 | 21.0 |
| 3010.0 | 2.9  | 51.1 | 55  | 9.5 | 2.05 | 14.64 | 47748 | 1872  | 2355  | 9.2 | 21.0 |
| 3011.0 | 3.2  | 50.4 | 55  | 9.5 | 2.01 | 14.95 | 48784 | 1728  | 2344  | 9.2 | 21.0 |
| 3012.0 | 2.5  | 51.0 | 55  | 9.5 | 2.10 | 15.35 | 50077 | 2152  | 2341  | 9.2 | 21.0 |
| 3013.0 | 2.4  | 48.5 | 55  | 9.5 | 2.09 | 15.77 | 51458 | 2304  | 2341  | 9.2 | 21.0 |
| 3014.0 | 2.1  | 49.0 | 52  | 9.5 | 2.13 | 16.25 | 52978 | 2654  | 2346  | 9.2 | 21.0 |
| 3015.0 | 2.9  | 50.2 | 51  | 9.5 | 2.02 | 16.60 | 54049 | 1898  | 2338  | 9.2 | 21.0 |
| 3016.0 | 3.0  | 49.7 | 54  | 9.5 | 2.02 | 16.94 | 55137 | 1854  | 2331  | 9.2 | 21.0 |
| 3017.0 | 2.5  | 51.2 | 54  | 9.5 | 2.10 | 17.33 | 56417 | 2163  | 2328  | 9.2 | 21.0 |
| 3018.0 | 3.4  | 50.7 | 54  | 9.5 | 1.99 | 17.63 | 57379 | 1626  | 2317  | 9.2 | 21.0 |
| 3019.0 | 3.2  | 51.9 | 54  | 9.5 | 2.03 | 17.95 | 58398 | 1735  | 2308  | 9.2 | 21.0 |
| 3020.0 | 3.5  | 49.2 | 54  | 9.5 | 1.95 | 18.23 | 59314 | 1547  | 2297  | 9.2 | 21.0 |
| 3021.0 | 3.0  | 47.9 | 54  | 9.5 | 1.99 | 18.56 | 60393 | 1808  | 2290  | 9.2 | 21.0 |
| 3022.0 | 2.5  | 50.1 | 54  | 9.5 | 2.10 | 18.96 | 61719 | 2227  | 2289  | 9.2 | 21.0 |
| 3023.0 | 2.7  | 50.8 | 54  | 9.5 | 2.07 | 19.34 | 62933 | 2042  | 2285  | 9.2 | 21.0 |
| 3024.0 | 3.3  | 51.6 | 54  | 9.5 | 2.01 | 19.64 | 63910 | 1659  | 2276  | 9.2 | 21.0 |
| 3025.0 | 2.8  | 52.8 | 54  | 9.5 | 2.09 | 20.00 | 65071 | 1956  | 2272  | 9.2 | 21.0 |
| 3026.0 | 3.2  | 51.8 | 54  | 9.5 | 2.02 | 20.31 | 66071 | 1688  | 2264  | 9.2 | 21.0 |
| 3027.0 | 2.3  | 49.9 | 55  | 9.5 | 2.12 | 20.75 | 67513 | 2409  | 2266  | 9.2 | 21.0 |
| 3028.0 | 2.3  | 46.9 | 55  | 9.5 | 2.08 | 21.18 | 68949 | 2394  | 2267  | 9.2 | 21.0 |
| 3029.0 | 2.9  | 47.4 | 54  | 9.5 | 2.00 | 21.53 | 70082 | 1901  | 2263  | 9.2 | 21.0 |
| 3030.0 | 3.2  | 46.1 | 54  | 9.5 | 1.95 | 21.84 | 71085 | 1685  | 2255  | 9.2 | 21.0 |
| 3031.0 | 2.6  | 48.4 | 54  | 9.5 | 2.05 | 22.22 | 72322 | 2073  | 2253  | 9.2 | 21.0 |
| 3032.0 | 2.6  | 47.5 | 55  | 9.5 | 2.04 | 22.60 | 73564 | 2070  | 2250  | 9.2 | 21.0 |
| 3033.0 | 2.8  | 46.4 | 55  | 9.5 | 2.00 | 22.95 | 74725 | 1927  | 2246  | 9.2 | 21.0 |
| 3034.0 | 2.7  | 46.0 | 56  | 9.5 | 2.01 | 23.32 | 75960 | 2015  | 2244  | 9.2 | 21.0 |
| 3035.0 | 3.0  | 46.5 | 56  | 9.5 | 1.99 | 23.65 | 77077 | 1808  | 2238  | 9.2 | 21.0 |
| 3036.0 | 3.0  | 47.6 | 56  | 9.5 | 2.01 | 23.98 | 78215 | 1842  | 2233  | 9.2 | 21.0 |
| 3037.0 | 3.6  | 48.1 | 56  | 9.5 | 1.95 | 24.26 | 79161 | 1535  | 2225  | 9.2 | 21.0 |
| 3038.0 | 9.5  | 45.7 | 57  | 9.5 | 1.59 | 24.37 | 79518 | 575   | 2206  | 9.2 | 21.0 |
| 3039.0 | 8.1  | 48.2 | 55  | 9.5 | 1.67 | 24.49 | 79930 | 680   | 2188  | 9.2 | 21.0 |
| 3040.0 | 6.5  | 50.0 | 55  | 9.5 | 1.76 | 24.65 | 80436 | 846   | 2172  | 9.2 | 21.0 |
| 3041.0 | 13.2 | 50.0 | 51  | 9.5 | 1.49 | 24.72 | 80667 | 415   | 2152  | 9.2 | 21.0 |
| 3042.0 | 15.5 | 50.0 | 52  | 9.5 | 1.44 | 24.79 | 80868 | 353   | 2132  | 9.3 | 21.0 |
| 3043.0 | 10.6 | 50.0 | 51  | 9.5 | 1.56 | 24.88 | 81154 | 516   | 2114  | 9.3 | 21.0 |
| 3044.0 | 9.2  | 50.0 | 54  | 9.5 | 1.63 | 24.99 | 81506 | 593   | 2097  | 9.3 | 21.0 |
| 3045.0 | 8.7  | 50.0 | 54  | 9.5 | 1.65 | 25.10 | 81882 | 631   | 2081  | 9.3 | 21.0 |
| 3046.0 | 4.9  | 49.4 | 56  | 9.5 | 1.86 | 25.31 | 82568 | 1119  | 2071  | 9.3 | 21.0 |

| DEPTH  | ROP  | WOB  | RPM | MW   | "d"c | HOURS | TURNS  | ICOST | CCOST | PP  | FG   |
|--------|------|------|-----|------|------|-------|--------|-------|-------|-----|------|
| 3047.0 | 9.3  | 48.6 | 59  | 9.5  | 1.64 | 25.42 | 82946  | 587   | 2055  | 9.3 | 21.0 |
| 3048.0 | 5.3  | 48.6 | 58  | 9.5  | 1.83 | 25.60 | 83603  | 1025  | 2044  | 9.3 | 21.0 |
| 3049.0 | 3.7  | 49.2 | 58  | 9.5  | 1.97 | 25.88 | 84558  | 1495  | 2038  | 9.3 | 21.0 |
| 3050.0 | 2.9  | 52.2 | 58  | 9.5  | 2.09 | 26.22 | 85756  | 1871  | 2036  | 9.3 | 21.0 |
| 3051.0 | 4.7  | 52.6 | 58  | 9.5  | 1.93 | 26.43 | 86503  | 1166  | 2027  | 9.3 | 21.0 |
| 3052.0 | 9.7  | 51.7 | 57  | 9.5  | 1.65 | 26.53 | 86856  | 566   | 2013  | 9.3 | 21.0 |
| 3053.0 | 12.1 | 48.3 | 42  | 9.5  | 1.44 | 26.62 | 87067  | 454   | 1997  | 9.3 | 21.0 |
| 3054.0 | 22.4 | 46.4 | 53  | 9.5  | 1.28 | 26.66 | 87210  | 245   | 1980  | 9.3 | 21.0 |
| 3055.0 | 22.9 | 48.9 | 51  | 9.5  | 1.28 | 26.71 | 87343  | 239   | 1962  | 9.3 | 21.0 |
| 3056.0 | 45.6 | 50.6 | 48  | 9.5  | 1.04 | 26.73 | 87407  | 120   | 1945  | 9.4 | 21.0 |
| 3057.0 | 25.6 | 48.2 | 49  | 9.5  | 1.22 | 26.77 | 87521  | 214   | 1928  | 9.4 | 21.0 |
| 3058.0 | 4.1  | 50.9 | 54  | 9.5  | 1.93 | 27.01 | 88321  | 1349  | 1922  | 9.4 | 21.0 |
| 3059.0 | 2.9  | 46.9 | 55  | 9.5  | 2.00 | 27.36 | 89458  | 1895  | 1922  | 9.4 | 21.0 |
| 3060.0 | 2.9  | 46.2 | 53  | 9.5  | 1.97 | 27.70 | 90541  | 1857  | 1921  | 9.4 | 21.0 |
| 3061.0 | 3.4  | 48.4 | 55  | 9.5  | 1.96 | 27.99 | 91512  | 1612  | 1919  | 9.4 | 21.0 |
| 3062.0 | 3.2  | 46.9 | 57  | 9.5  | 1.98 | 28.31 | 92574  | 1714  | 1917  | 9.4 | 21.0 |
| 3063.0 | 2.9  | 47.8 | 56  | 9.7  | 1.98 | 28.65 | 93744  | 1893  | 1916  | 9.6 | 20.9 |
| 3064.0 | 3.0  | 49.0 | 56  | 9.7  | 1.98 | 28.99 | 94876  | 1833  | 1916  | 9.6 | 20.9 |
| 3065.0 | 2.9  | 47.4 | 56  | 9.7  | 1.97 | 29.33 | 96029  | 1863  | 1915  | 9.6 | 20.9 |
| 3066.0 | 3.2  | 48.3 | 56  | 9.9  | 1.92 | 29.64 | 97077  | 1694  | 1913  | 9.8 | 20.9 |
| 3067.0 | 2.6  | 48.7 | 57  | 9.9  | 1.99 | 30.02 | 98389  | 2114  | 1915  | 9.8 | 20.9 |
| 3068.0 | 4.0  | 50.1 | 56  | 9.9  | 1.86 | 30.27 | 99236  | 1373  | 1910  | 9.8 | 20.9 |
| 3069.0 | 2.7  | 49.6 | 56  | 9.9  | 1.99 | 30.64 | 100489 | 2026  | 1911  | 9.8 | 20.9 |
| 3070.0 | 3.5  | 49.4 | 56  | 10.0 | 1.88 | 30.93 | 101456 | 1565  | 1908  | 9.8 | 20.9 |
| 3071.0 | 5.4  | 47.9 | 56  | 10.0 | 1.72 | 31.11 | 102088 | 1020  | 1901  | 9.8 | 20.9 |
| 3072.0 | 8.0  | 49.7 | 54  | 10.0 | 1.59 | 31.24 | 102494 | 683   | 1890  | 9.8 | 20.9 |
| 3073.0 | 7.3  | 49.0 | 54  | 10.0 | 1.62 | 31.38 | 102940 | 750   | 1881  | 9.8 | 20.9 |
| 3074.0 | 11.9 | 48.0 | 55  | 10.0 | 1.45 | 31.46 | 103216 | 461   | 1869  | 9.8 | 20.9 |
| 3075.0 | 6.9  | 47.9 | 55  | 10.0 | 1.63 | 31.60 | 103690 | 789   | 1860  | 9.8 | 20.9 |
| 3076.0 | 2.5  | 50.3 | 54  | 10.0 | 1.99 | 32.00 | 104987 | 2175  | 1863  | 9.8 | 20.9 |
| 3077.0 | 12.0 | 52.0 | 53  | 10.0 | 1.48 | 32.09 | 105256 | 458   | 1851  | 9.8 | 20.9 |
| 3078.0 | 11.5 | 52.0 | 54  | 10.0 | 1.49 | 32.17 | 105536 | 478   | 1840  | 9.8 | 20.9 |
| 3079.0 | 11.8 | 50.8 | 54  | 10.4 | 1.42 | 32.26 | 105808 | 462   | 1829  | 9.8 | 20.9 |
| 3080.0 | 5.1  | 54.3 | 55  | 10.5 | 1.72 | 32.45 | 106458 | 1074  | 1824  | 9.8 | 20.9 |
| 3081.0 | 3.3  | 54.1 | 55  | 10.5 | 1.86 | 32.76 | 107463 | 1661  | 1822  | 9.8 | 20.9 |
| 3082.0 | 2.7  | 49.5 | 55  | 10.5 | 1.86 | 33.12 | 108666 | 1992  | 1824  | 9.8 | 20.9 |
| 3083.0 | 3.2  | 49.9 | 55  | 10.5 | 1.82 | 33.44 | 109708 | 1732  | 1823  | 9.8 | 20.9 |
| 3084.0 | 3.0  | 50.0 | 55  | 10.5 | 1.84 | 33.77 | 110808 | 1825  | 1823  | 9.8 | 20.9 |
| 3085.0 | 3.0  | 50.0 | 55  | 10.5 | 1.84 | 34.10 | 111908 | 1825  | 1823  | 9.8 | 20.9 |



COMPUTER DATA LISTING ; LIST B

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INTERVAL . . . . . 10 m average

DEPTH. . . . . Well depth, in metres

ROP. . . . . Rate of penetration, in metres per hour

BIT RUN. . . . . Depth interval drilled by the bit, in metres

HOURS. . . . . Cumulative bit hours. The number of hours  
that the bit has actually been "on bottom",  
recorded in decimal hours

TURNS. . . . . Cumulative bit turns. The number of turns  
made by the bit, while actually "on bottom"

TOTAL COST . . . . . Cumulative bit cost, in A dollars

ICOST. . . . . Incremental cost per metre, calculated  
from the drilling time, in A dollars

CCOST. . . . . Cumulative cost per metre, calculated  
from the drilling time, in A dollars

IC . . . . . ICOST minus CCOST, expressed as a positive  
or negative sign. When the bit becomes worn,  
this should change from negative to positive

|                  |      |             |        |           |              |
|------------------|------|-------------|--------|-----------|--------------|
| BIT NUMBER       | 1    | IADC CODE   | 111    | INTERVAL  | 71.0- 208.0  |
| HTC OSC3AJ&26"HO |      | SIZE        | 26.000 | NOZZLES   | 20 20 20     |
| COST             | 0.00 | TRIP TIME   | 2.4    | BIT RUN   | 137.0        |
| TOTAL HOURS      | 2.04 | TOTAL TURNS | 15736  | CONDITION | T3 B4 G0.000 |

| DEPTH | ROP   | BIT RUN | HOURS | TURNS | TOTAL COST | ICOST | CCOST  | I-C |
|-------|-------|---------|-------|-------|------------|-------|--------|-----|
| 80.0  | 25.6  | 9.0     | 0.35  | 2109  | 15064.86   | 214   | 1674   | -   |
| 90.0  | 69.1  | 19.0    | 0.50  | 2978  | 15857.36   | 79.25 | 834.60 | -   |
| 100.0 | 63.1  | 29.0    | 0.65  | 3929  | 16724.96   | 86.76 | 576.72 | -   |
| 110.0 | 85.7  | 39.0    | 0.77  | 4633  | 17363.84   | 63.89 | 445.23 | -   |
| 120.0 | 84.7  | 49.0    | 0.89  | 5356  | 18010.05   | 64.62 | 367.55 | -   |
| 130.0 | 66.0  | 59.0    | 1.04  | 6719  | 18839.35   | 82.93 | 319.31 | -   |
| 140.0 | 57.3  | 69.0    | 1.22  | 8289  | 19794.30   | 95.49 | 286.87 | -   |
| 150.0 | 61.0  | 79.0    | 1.38  | 9764  | 20691.74   | 89.74 | 261.92 | -   |
| 160.0 | 69.2  | 89.0    | 1.52  | 11065 | 21483.02   | 79.13 | 241.38 | -   |
| 170.0 | 78.1  | 99.0    | 1.65  | 12217 | 22184.23   | 70.12 | 224.08 | -   |
| 180.0 | 69.1  | 109.0   | 1.80  | 13520 | 22976.43   | 79.22 | 210.79 | -   |
| 190.0 | 102.0 | 119.0   | 1.89  | 14402 | 23513.04   | 53.66 | 197.59 | -   |
| 200.0 | 113.9 | 129.0   | 1.98  | 15192 | 23993.57   | 48.05 | 106.00 | -   |
| 208.0 | 132.2 | 137.0   | 2.04  | 15736 | 24324.97   | 41.42 | 177.55 | -   |

|             |         |             |        |           |        |           |
|-------------|---------|-------------|--------|-----------|--------|-----------|
| BIT NUMBER  | 2       | IADC CODE   | 111    | INTERVAL  | 208.0- | 825.0     |
| HTC OSC 3AJ |         | SIZE        | 17.500 | NOZZLES   | 18     | 18        |
| COST        | 4442.00 | TRIP TIME   | 3.7    | BIT RUN   |        | 617.0     |
| TOTAL HOURS | 12.57   | TOTAL TURNS | 107714 | CONDITION | T2     | R2 G0.000 |

| DEPTH | ROP   | BIT RUN | HOURS | TURNS | TOTAL COST | ICOST  | CCOST  | I-C |
|-------|-------|---------|-------|-------|------------|--------|--------|-----|
| 210.0 | 100.0 | 2.0     | 0.02  | 144   | 24809.00   | 55     | 12405  | -   |
| 220.0 | 195.1 | 12.0    | 0.07  | 513   | 25089.67   | 28     | 2091   | -   |
| 230.0 | 169.8 | 22.0    | 0.13  | 945   | 25412.09   | 32     | 1155   | -   |
| 240.0 | 166.7 | 32.0    | 0.19  | 1363  | 25740.59   | 32.85  | 804.39 | -   |
| 250.0 | 69.9  | 42.0    | 0.33  | 2399  | 26523.82   | 78.32  | 631.52 | -   |
| 260.0 | 114.3 | 52.0    | 0.42  | 3056  | 27002.88   | 47.91  | 519.29 | -   |
| 270.0 | 131.4 | 62.0    | 0.50  | 3535  | 27419.59   | 41.67  | 442.25 | -   |
| 280.0 | 142.3 | 72.0    | 0.57  | 4054  | 27804.36   | 38.48  | 386.17 | -   |
| 290.0 | 159.3 | 82.0    | 0.63  | 4505  | 28148.07   | 34.37  | 343.27 | -   |
| 300.0 | 254.1 | 92.0    | 0.67  | 4824  | 28363.52   | 21.55  | 308.30 | -   |
| 310.0 | 228.8 | 102.0   | 0.71  | 5178  | 28602.85   | 23.93  | 280.42 | -   |
| 320.0 | 215.6 | 112.0   | 0.76  | 5595  | 28856.83   | 25.40  | 257.65 | -   |
| 330.0 | 216.9 | 122.0   | 0.81  | 6010  | 29109.29   | 25.25  | 238.60 | -   |
| 340.0 | 193.5 | 132.0   | 0.86  | 6475  | 29392.16   | 28.29  | 222.67 | -   |
| 350.0 | 160.6 | 142.0   | 0.92  | 7036  | 29733.15   | 34.10  | 209.39 | -   |
| 360.0 | 97.9  | 152.0   | 1.02  | 7955  | 30292.67   | 55.95  | 199.29 | -   |
| 370.0 | 124.1 | 162.0   | 1.10  | 8656  | 30733.71   | 44.10  | 189.71 | -   |
| 380.0 | 102.6 | 172.0   | 1.20  | 9505  | 31267.52   | 53.38  | 181.79 | -   |
| 390.0 | 103.2 | 182.0   | 1.30  | 10362 | 31798.29   | 53.08  | 174.72 | -   |
| 400.0 | 109.4 | 192.0   | 1.39  | 11156 | 32298.65   | 50.04  | 168.22 | -   |
| 410.0 | 110.1 | 202.0   | 1.48  | 11919 | 32795.96   | 49.73  | 162.36 | -   |
| 420.0 | 90.3  | 212.0   | 1.59  | 12876 | 33402.05   | 60.61  | 157.56 | -   |
| 430.0 | 98.6  | 222.0   | 1.69  | 13752 | 33957.16   | 55.51  | 152.96 | -   |
| 440.0 | 74.7  | 232.0   | 1.82  | 14901 | 34690.20   | 73.30  | 149.53 | -   |
| 450.0 | 72.7  | 242.0   | 1.96  | 16080 | 35443.01   | 75.28  | 146.46 | -   |
| 460.0 | 81.6  | 252.0   | 2.08  | 17109 | 36113.70   | 67.07  | 143.31 | -   |
| 470.0 | 91.4  | 262.0   | 2.19  | 18029 | 36713.00   | 59.93  | 140.13 | -   |
| 480.0 | 82.9  | 272.0   | 2.31  | 19051 | 37373.04   | 66.00  | 137.40 | -   |
| 490.0 | 67.5  | 282.0   | 2.46  | 20313 | 38183.64   | 81.06  | 135.40 | -   |
| 500.0 | 83.9  | 292.0   | 2.58  | 21314 | 38836.08   | 65.24  | 133.00 | -   |
| 510.0 | 56.3  | 302.0   | 2.76  | 22807 | 39809.33   | 97.33  | 131.82 | -   |
| 520.0 | 49.7  | 312.0   | 2.96  | 24499 | 40911.94   | 110.26 | 131.13 | -   |
| 530.0 | 44.9  | 322.0   | 3.18  | 26501 | 42130.13   | 121.82 | 130.84 | -   |
| 540.0 | 71.4  | 332.0   | 3.32  | 27845 | 42896.64   | 76.65  | 129.21 | -   |
| 550.0 | 62.0  | 342.0   | 3.49  | 29302 | 43780.24   | 88.36  | 128.01 | -   |
| 560.0 | 65.0  | 352.0   | 3.64  | 30607 | 44622.13   | 84.19  | 126.77 | -   |
| 570.0 | 51.7  | 362.0   | 3.83  | 32256 | 45681.98   | 105.99 | 126.19 | -   |
| 580.0 | 55.6  | 372.0   | 4.01  | 33723 | 46665.96   | 98.40  | 125.45 | -   |
| 590.0 | 54.9  | 382.0   | 4.19  | 35208 | 47662.52   | 99.66  | 124.77 | -   |
| 600.0 | 50.8  | 392.0   | 4.39  | 36808 | 48740.68   | 107.82 | 124.34 | -   |
| 610.0 | 46.7  | 402.0   | 4.60  | 38546 | 49911.81   | 117.11 | 124.16 | -   |
| 620.0 | 48.7  | 412.0   | 4.81  | 40208 | 51035.11   | 112.33 | 123.87 | -   |
| 630.0 | 48.5  | 422.0   | 5.02  | 41967 | 52164.32   | 112.92 | 123.61 | -   |

| DEPTH | ROP  | BIT RUN | HOURS | TURNS  | TOTAL COST | ICOST  | CCOST  | I-C |
|-------|------|---------|-------|--------|------------|--------|--------|-----|
| 640.0 | 47.6 | 432.0   | 5.23  | 43796  | 53315.60   | 115.13 | 123.42 | -   |
| 650.0 | 44.1 | 442.0   | 5.45  | 45600  | 54558.44   | 124.28 | 123.44 | +   |
| 660.0 | 45.5 | 452.0   | 5.67  | 47314  | 55761.97   | 120.35 | 123.37 | -   |
| 670.0 | 36.6 | 462.0   | 5.95  | 49362  | 57256.95   | 149.50 | 123.93 | +   |
| 680.0 | 31.4 | 472.0   | 6.27  | 51783  | 59002.21   | 174.53 | 125.00 | +   |
| 690.0 | 43.1 | 482.0   | 6.50  | 53681  | 60272.20   | 127.00 | 125.05 | +   |
| 700.0 | 36.1 | 492.0   | 6.77  | 56010  | 61789.99   | 151.78 | 125.59 | +   |
| 710.0 | 42.7 | 502.0   | 7.01  | 57935  | 63072.05   | 128.21 | 125.64 | +   |
| 720.0 | 40.1 | 512.0   | 7.26  | 59985  | 64437.76   | 136.57 | 125.86 | +   |
| 730.0 | 38.5 | 522.0   | 7.52  | 62221  | 65859.74   | 142.20 | 126.17 | +   |
| 740.0 | 42.0 | 532.0   | 7.76  | 64366  | 67164.62   | 130.49 | 126.25 | +   |
| 750.0 | 29.4 | 542.0   | 8.10  | 67426  | 69026.12   | 186.15 | 127.35 | +   |
| 760.0 | 36.0 | 552.0   | 8.37  | 69926  | 70546.95   | 152.08 | 127.80 | +   |
| 770.0 | 30.5 | 562.0   | 8.70  | 72881  | 72344.57   | 179.76 | 128.73 | +   |
| 780.0 | 21.5 | 572.0   | 9.17  | 77066  | 74890.45   | 254.59 | 130.93 | +   |
| 790.0 | 18.8 | 582.0   | 9.70  | 81859  | 77805.89   | 291.54 | 133.69 | +   |
| 800.0 | 19.0 | 592.0   | 10.23 | 86599  | 80689.39   | 288.35 | 136.30 | +   |
| 810.0 | 11.7 | 602.0   | 11.08 | 94259  | 85349.22   | 465.98 | 141.78 | +   |
| 820.0 | 11.3 | 612.0   | 11.96 | 102226 | 90196.12   | 484.69 | 147.38 | +   |
| 825.0 | 8.2  | 617.0   | 12.57 | 107714 | 93534.53   | 667.68 | 151.60 | +   |

|             |         |             |        |           |               |
|-------------|---------|-------------|--------|-----------|---------------|
| BIT NUMBER  | 3       | IADC CODE   | 114    | INTERVAL  | 825.0- 1271.0 |
| HTC X3A     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16      |
| COST        | 2201.00 | TRIP TIME   | 4.7    | BIT RUN   | 446.0         |
| TOTAL HOURS | 18.77   | TOTAL TURNS | 166290 | CONDITION | T6 B8 G0.063  |

| DEPTH  | ROP  | BIT RUN | HOURS | TURNS  | TOTAL COST | ICOST  | CCOST  | I-C |
|--------|------|---------|-------|--------|------------|--------|--------|-----|
| 830.0  | 26.4 | 5.0     | 0.19  | 1497   | 28971.72   | 208    | 5794   | -   |
| 840.0  | 32.6 | 15.0    | 0.50  | 4397   | 30652.92   | 168    | 2044   | -   |
| 850.0  | 28.6 | 25.0    | 0.85  | 7664   | 32564.61   | 191    | 1303   | -   |
| 860.0  | 26.3 | 35.0    | 1.23  | 10885  | 34645.11   | 208.05 | 989.86 | -   |
| 870.0  | 25.4 | 45.0    | 1.62  | 14396  | 36797.09   | 215.20 | 817.71 | -   |
| 880.0  | 30.5 | 55.0    | 1.95  | 17344  | 38593.19   | 179.61 | 701.69 | -   |
| 890.0  | 25.5 | 65.0    | 2.34  | 20844  | 40737.56   | 214.44 | 626.73 | -   |
| 900.0  | 28.4 | 75.0    | 2.69  | 24016  | 42667.50   | 192.99 | 568.90 | -   |
| 910.0  | 22.9 | 85.0    | 3.13  | 27945  | 45059.77   | 239.23 | 530.11 | -   |
| 920.0  | 26.1 | 95.0    | 3.51  | 31376  | 47158.52   | 209.88 | 496.41 | -   |
| 930.0  | 24.4 | 105.0   | 3.92  | 34940  | 49406.31   | 224.78 | 470.54 | -   |
| 940.0  | 20.5 | 115.0   | 4.41  | 39247  | 52073.86   | 266.75 | 452.82 | -   |
| 950.0  | 26.1 | 125.0   | 4.79  | 42676  | 54168.04   | 209.42 | 433.34 | -   |
| 960.0  | 24.4 | 135.0   | 5.20  | 46279  | 56414.31   | 224.63 | 417.88 | -   |
| 970.0  | 30.4 | 145.0   | 5.53  | 49112  | 58218.02   | 180.37 | 401.50 | -   |
| 980.0  | 26.5 | 155.0   | 5.91  | 52324  | 60286.36   | 206.83 | 388.94 | -   |
| 990.0  | 21.5 | 165.0   | 6.37  | 56430  | 62832.23   | 254.59 | 380.80 | -   |
| 1000.0 | 23.4 | 175.0   | 6.80  | 60192  | 65168.23   | 233.60 | 372.39 | -   |
| 1010.0 | 21.4 | 185.0   | 7.27  | 64227  | 67727.79   | 255.96 | 366.10 | -   |
| 1020.0 | 19.7 | 195.0   | 7.78  | 68661  | 70509.40   | 278.16 | 361.59 | -   |
| 1030.0 | 14.2 | 205.0   | 8.48  | 74995  | 74352.54   | 384.31 | 362.70 | +   |
| 1040.0 | 18.9 | 215.0   | 9.01  | 79712  | 77245.17   | 289.26 | 359.28 | -   |
| 1050.0 | 23.1 | 225.0   | 9.44  | 83569  | 79616.15   | 237.10 | 353.85 | -   |
| 1060.0 | 22.2 | 235.0   | 9.89  | 87551  | 82086.49   | 247.03 | 349.30 | -   |
| 1070.0 | 24.3 | 245.0   | 10.30 | 91124  | 84335.80   | 224.93 | 344.23 | -   |
| 1080.0 | 23.2 | 255.0   | 10.73 | 94897  | 86700.70   | 236.49 | 340.00 | -   |
| 1090.0 | 20.1 | 265.0   | 11.23 | 99299  | 89426.03   | 272.53 | 337.46 | -   |
| 1100.0 | 17.7 | 275.0   | 11.80 | 104086 | 92517.88   | 309.19 | 336.43 | -   |
| 1110.0 | 19.5 | 285.0   | 12.31 | 108549 | 95328.38   | 281.05 | 334.49 | -   |
| 1120.0 | 24.1 | 295.0   | 12.72 | 112239 | 97601.16   | 227.28 | 330.85 | -   |
| 1130.0 | 20.0 | 305.0   | 13.23 | 116744 | 100341.46  | 274.03 | 328.99 | -   |
| 1140.0 | 16.4 | 315.0   | 13.83 | 122224 | 103678.99  | 333.75 | 329.14 | +   |
| 1150.0 | 24.9 | 325.0   | 14.24 | 125830 | 105878.10  | 219.91 | 325.78 | -   |
| 1160.0 | 24.1 | 335.0   | 14.65 | 129499 | 108152.50  | 227.44 | 322.84 | -   |
| 1170.0 | 21.7 | 345.0   | 15.11 | 133580 | 110675.57  | 252.31 | 320.80 | -   |
| 1180.0 | 22.5 | 355.0   | 15.56 | 137500 | 113104.34  | 242.88 | 318.60 | -   |
| 1190.0 | 22.9 | 365.0   | 15.99 | 141358 | 115496.61  | 239.23 | 316.43 | -   |
| 1200.0 | 20.6 | 375.0   | 16.48 | 145630 | 118153.50  | 265.69 | 315.08 | -   |
| 1210.0 | 27.3 | 385.0   | 16.85 | 148899 | 120161.00  | 200.75 | 312.11 | -   |
| 1220.0 | 36.0 | 395.0   | 17.12 | 151553 | 121681.84  | 152.08 | 308.06 | -   |
| 1230.0 | 26.3 | 405.0   | 17.50 | 155054 | 123765.38  | 208.35 | 305.59 | -   |
| 1240.0 | 33.5 | 415.0   | 17.80 | 157751 | 125401.80  | 163.64 | 302.17 | -   |
| 1250.0 | 32.3 | 425.0   | 18.11 | 160501 | 127096.00  | 169.42 | 299.05 | -   |

| DEPTH  | ROP  | BIT RUN | HOURS | URNS   | TOTAL COST | ICOST  | CCOST  | I-C |
|--------|------|---------|-------|--------|------------|--------|--------|-----|
| 1260.0 | 33.1 | 435.0   | 18.41 | 163159 | 128752.19  | 165.62 | 295.98 | -   |
| 1270.0 | 31.5 | 445.0   | 18.73 | 165948 | 130490.50  | 173.83 | 293.24 | -   |
| 1271.0 | 26.1 | 446.0   | 18.77 | 166290 | 130700.38  | 209.88 | 293.05 | -   |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 4       | IADC CODE   | 114    | INTERVAL  | 1271.0- 1624.0 |
| HTC X3A     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 2201.00 | TRIP TIME   | 5.4    | BIT RUN   | 353.0          |
| TOTAL HOURS | 15.10   | TOTAL TURNS | 122032 | CONDITION | T8 B8 G1.500   |

| DEPTH  | ROP  | BIT RUN | HOURS | TURNS  | TOTAL COST | ICOST  | CCOST  | I-C |
|--------|------|---------|-------|--------|------------|--------|--------|-----|
| 1280.0 | 15.5 | 9.0     | 0.58  | 3074   | 34940.66   | 353    | 3882   | -   |
| 1290.0 | 45.0 | 19.0    | 0.80  | 4984   | 36157.32   | 122    | 1903   | -   |
| 1300.0 | 38.5 | 29.0    | 1.06  | 7318   | 37579.56   | 142    | 1296   | -   |
| 1310.0 | 36.7 | 39.0    | 1.33  | 9485   | 39069.98   | 149    | 1002   | -   |
| 1320.0 | 45.0 | 49.0    | 1.56  | 11353  | 40286.64   | 121.67 | 822.18 | -   |
| 1330.0 | 40.4 | 59.0    | 1.80  | 13482  | 41643.23   | 135.66 | 705.82 | -   |
| 1340.0 | 47.7 | 69.0    | 2.01  | 15313  | 42789.93   | 114.67 | 620.14 | -   |
| 1350.0 | 43.3 | 79.0    | 2.24  | 17374  | 44053.75   | 126.38 | 557.64 | -   |
| 1360.0 | 47.6 | 89.0    | 2.45  | 19289  | 45203.50   | 114.98 | 507.90 | -   |
| 1370.0 | 48.8 | 99.0    | 2.66  | 21194  | 46325.87   | 112.24 | 467.94 | -   |
| 1380.0 | 49.9 | 109.0   | 2.86  | 23009  | 47422.39   | 109.65 | 435.07 | -   |
| 1390.0 | 36.7 | 119.0   | 3.13  | 25174  | 48912.81   | 149.04 | 411.03 | -   |
| 1400.0 | 31.7 | 129.0   | 3.45  | 27785  | 50640.48   | 172.77 | 392.56 | -   |
| 1410.0 | 33.0 | 139.0   | 3.75  | 30235  | 52298.18   | 165.77 | 376.25 | -   |
| 1420.0 | 31.5 | 149.0   | 4.07  | 32498  | 54038.02   | 173.98 | 362.67 | -   |
| 1430.0 | 34.4 | 159.0   | 4.36  | 34809  | 55630.33   | 159.23 | 349.88 | -   |
| 1440.0 | 44.1 | 169.0   | 4.59  | 36601  | 56871.33   | 124.10 | 336.52 | -   |
| 1450.0 | 36.5 | 179.0   | 4.86  | 38690  | 58371.34   | 150.00 | 326.10 | -   |
| 1460.0 | 34.0 | 189.0   | 5.15  | 40969  | 59981.90   | 161.06 | 317.36 | -   |
| 1470.0 | 32.1 | 199.0   | 5.46  | 43326  | 61685.23   | 170.33 | 309.98 | -   |
| 1480.0 | 32.1 | 209.0   | 5.78  | 45894  | 63388.56   | 170.33 | 303.29 | -   |
| 1490.0 | 29.0 | 219.0   | 6.12  | 48715  | 65275.92   | 188.74 | 298.06 | -   |
| 1500.0 | 22.6 | 229.0   | 6.56  | 52283  | 67701.65   | 242.57 | 295.64 | -   |
| 1510.0 | 21.7 | 239.0   | 7.02  | 55808  | 70221.67   | 252.00 | 293.81 | -   |
| 1520.0 | 40.8 | 249.0   | 7.27  | 57637  | 71564.56   | 134.29 | 287.41 | -   |
| 1530.0 | 26.6 | 259.0   | 7.65  | 60937  | 73623.77   | 205.92 | 284.26 | -   |
| 1540.0 | 34.0 | 269.0   | 7.94  | 63621  | 75235.86   | 161.21 | 279.69 | -   |
| 1550.0 | 12.0 | 279.0   | 8.78  | 70867  | 79811.20   | 457.53 | 286.06 | +   |
| 1560.0 | 24.5 | 289.0   | 9.18  | 74657  | 82043.78   | 223.26 | 283.89 | -   |
| 1570.0 | 26.0 | 299.0   | 9.57  | 78433  | 84151.66   | 210.79 | 281.44 | -   |
| 1580.0 | 30.8 | 309.0   | 9.89  | 81640  | 85931.03   | 177.94 | 278.09 | -   |
| 1590.0 | 9.3  | 319.0   | 10.97 | 91595  | 91821.22   | 589.02 | 287.84 | +   |
| 1600.0 | 8.5  | 329.0   | 12.15 | 100445 | 98299.97   | 647.87 | 298.78 | +   |
| 1610.0 | 8.9  | 339.0   | 13.27 | 110427 | 104444.14  | 614.42 | 308.09 | +   |
| 1620.0 | 7.3  | 349.0   | 14.65 | 119273 | 111974.54  | 753.04 | 320.84 | +   |
| 1624.0 | 8.9  | 353.0   | 15.10 | 122032 | 114442.86  | 617.08 | 324.20 | +   |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 5       | IADC CODE   | 517    | INTERVAL  | 1624.0- 1626.0 |
| HTC J22     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 6788.00 | TRIP TIME   | 5.4    | BIT RUN   | 2.0            |
| TOTAL HOURS | 1.66    | TOTAL TURNS | 6146   | CONDITION | T8 B2 G0.125   |

| DEPTH  | ROP | BIT RUN | HOURS | TURNS | TOTAL COST | ICOST | CCOST | I-C |
|--------|-----|---------|-------|-------|------------|-------|-------|-----|
| 1626.0 | 1.2 | 2.0     | 1.66  | 6146  | 45462.28   | 4555  | 22731 | -   |



|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 6       | IADC CODE   | 316    | INTERVAL  | 1626.0- 1663.0 |
| HTC J7      |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 1761.00 | TRIP TIME   | 5.5    | BIT RUN   | 37.0           |
| TOTAL HOURS | 3.99    | TOTAL TURNS | 26591  | CONDITION | T5 B2 G0.375   |

| DEPTH  | ROP  | BIT RUN | HOURS | TURNS | TOTAL COST | ICOST | CCOST | I-C |
|--------|------|---------|-------|-------|------------|-------|-------|-----|
| 1630.0 | 7.7  | 4.0     | 0.52  | 3158  | 34725.69   | 713   | 8681  | -   |
| 1640.0 | 7.1  | 14.0    | 1.94  | 12393 | 42480.57   | 775   | 3034  | -   |
| 1650.0 | 8.6  | 24.0    | 3.10  | 20098 | 48872.52   | 639   | 2036  | -   |
| 1660.0 | 17.3 | 34.0    | 3.68  | 24000 | 52029.05   | 316   | 1530  | -   |
| 1663.0 | 9.7  | 37.0    | 3.99  | 26591 | 53716.94   | 563   | 1452  | -   |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 7       | IADC CODE   | 517    | INTERVAL  | 1663.0- 2058.0 |
| HTC J22     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 6788.00 | TRIP TIME   | 6.4    | BIT RUN   | 395.0          |
| TOTAL HOURS | 46.42   | TOTAL TURNS | 174195 | CONDITION | T4 B3 G0.125   |

| DEPTH  | ROP  | BIT RUN | HOURS | TURNS  | TOTAL COST | ICOST  | CCOST  | I-C |
|--------|------|---------|-------|--------|------------|--------|--------|-----|
| 1670.0 | 29.3 | 7.0     | 0.24  | 827    | 43134.61   | 187    | 6162   | -   |
| 1680.0 | 15.5 | 17.0    | 0.88  | 3029   | 46658.38   | 352    | 2745   | -   |
| 1690.0 | 24.2 | 27.0    | 1.30  | 4413   | 48918.34   | 226    | 1812   | -   |
| 1700.0 | 8.3  | 37.0    | 2.50  | 8709   | 55532.45   | 661    | 1501   | -   |
| 1710.0 | 8.6  | 47.0    | 3.67  | 12843  | 61919.95   | 639    | 1317   | -   |
| 1720.0 | 17.9 | 57.0    | 4.23  | 14601  | 64982.90   | 306    | 1140   | -   |
| 1730.0 | 35.9 | 67.0    | 4.51  | 15770  | 66506.78   | 152.39 | 992.64 | -   |
| 1740.0 | 5.5  | 77.0    | 6.31  | 22802  | 76401.32   | 989.45 | 992.22 | -   |
| 1750.0 | 25.3 | 87.0    | 6.71  | 24212  | 78566.99   | 216.57 | 903.07 | -   |
| 1760.0 | 29.3 | 97.0    | 7.05  | 25447  | 80436.09   | 186.91 | 829.24 | -   |
| 1770.0 | 11.5 | 107.0   | 7.92  | 28595  | 85203.90   | 476.78 | 796.30 | -   |
| 1780.0 | 21.2 | 117.0   | 8.39  | 30061  | 87786.28   | 258.24 | 750.31 | -   |
| 1790.0 | 33.7 | 127.0   | 8.69  | 31337  | 89409.01   | 162.27 | 704.01 | -   |
| 1800.0 | 31.7 | 137.0   | 9.01  | 32820  | 91138.37   | 172.94 | 665.24 | -   |
| 1810.0 | 23.3 | 147.0   | 9.44  | 34915  | 93489.57   | 235.12 | 635.98 | -   |
| 1820.0 | 8.2  | 157.0   | 10.65 | 39786  | 100128.01  | 663.84 | 637.76 | +   |
| 1830.0 | 8.4  | 167.0   | 11.84 | 43935  | 106675.20  | 654.72 | 638.77 | +   |
| 1840.0 | 7.4  | 177.0   | 13.19 | 49020  | 114054.28  | 737.91 | 644.37 | +   |
| 1850.0 | 6.3  | 187.0   | 14.79 | 55279  | 122808.20  | 875.39 | 656.73 | +   |
| 1860.0 | 7.5  | 197.0   | 16.13 | 61863  | 130143.17  | 733.50 | 660.63 | +   |
| 1870.0 | 3.4  | 207.0   | 19.06 | 73338  | 146200.52  | 1606   | 706    | +   |
| 1880.0 | 6.3  | 217.0   | 20.64 | 79842  | 154852.49  | 865.20 | 713.61 | +   |
| 1890.0 | 24.2 | 227.0   | 21.06 | 81909  | 157115.49  | 226.30 | 692.14 | -   |
| 1900.0 | 7.7  | 237.0   | 22.36 | 87423  | 164243.63  | 712.81 | 693.01 | +   |
| 1910.0 | 7.2  | 247.0   | 23.75 | 92462  | 171840.20  | 759.66 | 695.71 | +   |
| 1920.0 | 5.1  | 257.0   | 25.71 | 99981  | 182580.32  | 1074   | 710    | +   |
| 1930.0 | 4.5  | 267.0   | 27.93 | 105796 | 194724.18  | 1214   | 729    | +   |
| 1940.0 | 6.0  | 277.0   | 29.59 | 111953 | 203846.13  | 912.20 | 735.91 | +   |
| 1950.0 | 4.5  | 287.0   | 31.81 | 120018 | 215965.65  | 1212   | 752    | +   |
| 1960.0 | 30.3 | 297.0   | 32.14 | 121196 | 217770.88  | 180.52 | 733.24 | -   |
| 1970.0 | 6.7  | 307.0   | 33.64 | 126867 | 226003.15  | 823.23 | 736.17 | +   |
| 1980.0 | 11.6 | 317.0   | 34.50 | 130660 | 230711.65  | 470.85 | 727.80 | -   |
| 1990.0 | 6.6  | 327.0   | 36.00 | 136825 | 238948.49  | 823.68 | 730.73 | +   |
| 2000.0 | 3.8  | 337.0   | 38.66 | 144901 | 253467.88  | 1452   | 752    | +   |
| 2010.0 | 12.0 | 347.0   | 39.49 | 148323 | 258047.11  | 457.92 | 743.65 | -   |
| 2020.0 | 16.8 | 357.0   | 40.09 | 150734 | 261306.26  | 325.91 | 731.95 | -   |
| 2030.0 | 7.5  | 367.0   | 41.41 | 155216 | 268565.20  | 725.89 | 731.79 | -   |
| 2040.0 | 6.3  | 377.0   | 43.01 | 161180 | 277297.82  | 873.26 | 735.54 | +   |
| 2050.0 | 4.4  | 387.0   | 45.26 | 169564 | 289612.01  | 1231   | 748    | +   |
| 2058.0 | 6.9  | 395.0   | 46.42 | 174195 | 295992.15  | 797.52 | 749.35 | +   |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 8       | IADC CODE   | 517    | INTERVAL  | 2058.0- 2253.0 |
| HTC J22     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 6788.00 | TRIP TIME   | 6.8    | BIT RUN   | 195.0          |
| TOTAL HOURS | 26.10   | TOTAL TURNS | 89647  | CONDITION | T2 B2 G0.000   |

| DEPTH  | ROP  | BIT RUN | HOURS | TURNS | TOTAL COST | ICOST  | CCOST  | I-C |
|--------|------|---------|-------|-------|------------|--------|--------|-----|
| 2060.0 | 6.5  | 2.0     | 0.31  | 1060  | 45707.14   | 845    | 22854  | -   |
| 2070.0 | 15.4 | 12.0    | 0.96  | 3019  | 49264.37   | 356    | 4105   | -   |
| 2080.0 | 13.2 | 22.0    | 1.72  | 6219  | 53416.24   | 415    | 2428   | -   |
| 2090.0 | 6.5  | 32.0    | 3.25  | 12399 | 61812.76   | 840    | 1932   | -   |
| 2100.0 | 13.1 | 42.0    | 4.02  | 15568 | 66004.18   | 419    | 1572   | -   |
| 2110.0 | 11.2 | 52.0    | 4.91  | 19412 | 70902.78   | 490    | 1364   | -   |
| 2120.0 | 8.8  | 62.0    | 6.04  | 23650 | 77110.83   | 621    | 1244   | -   |
| 2130.0 | 14.4 | 72.0    | 6.74  | 26309 | 80924.88   | 381    | 1124   | -   |
| 2140.0 | 14.2 | 82.0    | 7.44  | 29125 | 84769.69   | 384    | 1034   | -   |
| 2150.0 | 5.8  | 92.0    | 9.17  | 34929 | 94236.88   | 947    | 1024   | -   |
| 2160.0 | 5.9  | 102.0   | 10.87 | 41466 | 103507.88  | 927    | 1015   | -   |
| 2170.0 | 5.9  | 112.0   | 12.55 | 46843 | 112756.06  | 925    | 1007   | -   |
| 2180.0 | 4.0  | 122.0   | 15.08 | 54630 | 126583.48  | 1383   | 1038   | +   |
| 2190.0 | 6.5  | 132.0   | 16.62 | 59418 | 134999.77  | 842    | 1023   | -   |
| 2200.0 | 14.8 | 142.0   | 17.29 | 61653 | 138692.36  | 369.26 | 976.71 | -   |
| 2210.0 | 5.8  | 152.0   | 19.03 | 67352 | 148194.52  | 950.22 | 974.96 | -   |
| 2220.0 | 4.2  | 162.0   | 21.41 | 74500 | 161256.96  | 1306   | 995    | +   |
| 2230.0 | 5.3  | 172.0   | 23.28 | 79858 | 171496.73  | 1024   | 997    | +   |
| 2240.0 | 7.6  | 182.0   | 24.59 | 84016 | 178653.77  | 715.70 | 981.61 | -   |
| 2250.0 | 8.8  | 192.0   | 25.73 | 88482 | 184901.36  | 624.76 | 963.03 | -   |
| 2253.0 | 8.1  | 195.0   | 26.10 | 89647 | 186939.27  | 679.31 | 958.66 | -   |

|             |      |             |       |           |                |
|-------------|------|-------------|-------|-----------|----------------|
| BIT NUMBER  | 8    | IADC CODE   | 4     | INTERVAL  | 2253.0- 2265.1 |
| CHRIS RC3   |      | SIZE        | 8.500 | NOZZLES   | 15 15 14       |
| COST        | 0.00 | TRIP TIME   | 6.8   | BIT RUN   | 12.1           |
| TOTAL HOURS | 2.42 | TOTAL TURNS | 10122 | CONDITION | TO R0 G0.700   |

| DEPTH  | ROP | BIT RUN | HOURS | TURNS | TOTAL COST | ICOST | CCOST | I-C |
|--------|-----|---------|-------|-------|------------|-------|-------|-----|
| 2260.0 | 4.9 | 7.0     | 1.42  | 6364  | 45013.63   | 1112  | 6431  | -   |
| 2265.1 | 5.1 | 12.1    | 2.42  | 10122 | 50488.63   | 1074  | 4173  | -   |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 9       | IADC CODE   | 517    | INTERVAL  | 2265.1- 2450.0 |
| HTC J22     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 6788.00 | TRIP TIME   | 7.2    | BIT RUN   | 184.9          |
| TOTAL HOURS | 38.89   | TOTAL TURNS | 125062 | CONDITION | T3 B4 G0.125   |

| DEPTH  | ROP | BIT RUN | HOURS | TURNS  | TOTAL COST | ICOST | CCOST | I-C |
|--------|-----|---------|-------|--------|------------|-------|-------|-----|
| 2270.0 | 2.7 | 4.9     | 1.79  | 5390   | 56019.66   | 2002  | 11433 | -   |
| 2280.0 | 3.8 | 14.9    | 4.40  | 13712  | 70298.76   | 1428  | 4718  | -   |
| 2290.0 | 4.5 | 24.9    | 6.62  | 20678  | 82435.01   | 1214  | 3311  | -   |
| 2300.0 | 7.2 | 34.9    | 8.00  | 25206  | 90033.09   | 760   | 2580  | -   |
| 2310.0 | 5.9 | 44.9    | 9.69  | 30411  | 99237.18   | 920   | 2210  | -   |
| 2320.0 | 5.1 | 54.9    | 11.66 | 36821  | 110033.57  | 1080  | 2004  | -   |
| 2330.0 | 5.5 | 64.9    | 13.48 | 42893  | 120036.09  | 1000  | 1850  | -   |
| 2340.0 | 5.4 | 74.9    | 15.33 | 49021  | 130129.86  | 1009  | 1737  | -   |
| 2350.0 | 3.7 | 84.9    | 18.04 | 56420  | 145002.96  | 1487  | 1708  | -   |
| 2360.0 | 5.6 | 94.9    | 19.84 | 61954  | 154838.19  | 984   | 1632  | -   |
| 2370.0 | 5.7 | 104.9   | 21.60 | 67205  | 164440.73  | 960   | 1568  | -   |
| 2380.0 | 4.8 | 114.9   | 23.66 | 73474  | 175739.00  | 1130  | 1529  | -   |
| 2390.0 | 5.1 | 124.9   | 25.60 | 79814  | 186387.88  | 1065  | 1492  | -   |
| 2400.0 | 5.3 | 134.9   | 27.48 | 85853  | 196673.95  | 1029  | 1458  | -   |
| 2410.0 | 4.9 | 144.9   | 29.52 | 92604  | 207811.01  | 1114  | 1434  | -   |
| 2420.0 | 3.7 | 154.9   | 32.19 | 101524 | 222427.74  | 1462  | 1436  | +   |
| 2430.0 | 5.8 | 164.9   | 33.91 | 107677 | 231852.35  | 942   | 1406  | -   |
| 2440.0 | 3.9 | 174.9   | 36.47 | 116869 | 245871.39  | 1402  | 1406  | -   |
| 2450.0 | 4.1 | 184.9   | 38.89 | 125062 | 259114.81  | 1324  | 1401  | -   |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 10      | IADC CODE   | 517    | INTERVAL  | 2450.0- 2678.0 |
| HTC J22     |         | SIZE        | 12.250 | NOZZLES   | 15 15 16       |
| COST        | 6788.00 | TRIP TIME   | 7.3    | BIT RUN   | 228.0          |
| TOTAL HOURS | 50.23   | TOTAL TURNS | 192705 | CONDITION | T6 B4 G0.250   |

| DEPTH  | ROP  | BIT RUN | HOURS | TURNS  | TOTAL COST | ICOST | CCOST | I-C |
|--------|------|---------|-------|--------|------------|-------|-------|-----|
| 2460.0 | 10.4 | 10.0    | 0.96  | 3775   | 51999.16   | 524   | 5200  | -   |
| 2470.0 | 9.2  | 20.0    | 2.04  | 7967   | 57927.37   | 593   | 2896  | -   |
| 2480.0 | 8.9  | 30.0    | 3.16  | 12795  | 64045.69   | 612   | 2135  | -   |
| 2490.0 | 6.0  | 40.0    | 4.81  | 19813  | 73108.33   | 906   | 1828  | -   |
| 2500.0 | 6.9  | 50.0    | 6.25  | 26694  | 80996.89   | 789   | 1620  | -   |
| 2510.0 | 6.3  | 60.0    | 7.84  | 33159  | 89671.73   | 867   | 1495  | -   |
| 2520.0 | 6.4  | 70.0    | 9.41  | 39697  | 98288.77   | 862   | 1404  | -   |
| 2530.0 | 3.8  | 80.0    | 12.07 | 49984  | 112850.75  | 1456  | 1411  | +   |
| 2540.0 | 3.5  | 90.0    | 14.89 | 58897  | 128289.81  | 1544  | 1425  | +   |
| 2550.0 | 2.4  | 100.0   | 19.06 | 73434  | 151123.60  | 2283  | 1511  | +   |
| 2560.0 | 2.7  | 110.0   | 22.82 | 88579  | 171689.43  | 2057  | 1561  | +   |
| 2570.0 | 2.4  | 120.0   | 26.92 | 101801 | 194130.76  | 2244  | 1618  | +   |
| 2580.0 | 3.5  | 130.0   | 29.76 | 112963 | 209678.98  | 1555  | 1613  | -   |
| 2590.0 | 4.3  | 140.0   | 32.07 | 122635 | 222334.56  | 1266  | 1588  | -   |
| 2600.0 | 5.0  | 150.0   | 34.07 | 131046 | 233261.74  | 1093  | 1555  | -   |
| 2610.0 | 5.8  | 160.0   | 35.79 | 138204 | 242698.62  | 944   | 1517  | -   |
| 2620.0 | 5.2  | 170.0   | 37.71 | 146318 | 253203.59  | 1050  | 1489  | -   |
| 2630.0 | 4.3  | 180.0   | 40.05 | 154829 | 266040.33  | 1284  | 1478  | -   |
| 2640.0 | 3.6  | 190.0   | 42.86 | 164893 | 281404.88  | 1536  | 1481  | +   |
| 2650.0 | 3.6  | 200.0   | 45.61 | 175251 | 296473.93  | 1507  | 1482  | +   |
| 2660.0 | 5.0  | 210.0   | 47.62 | 182938 | 307479.65  | 1101  | 1464  | -   |
| 2670.0 | 6.7  | 220.0   | 49.11 | 188562 | 315613.57  | 813   | 1435  | -   |
| 2678.0 | 7.1  | 228.0   | 50.23 | 192705 | 321743.03  | 766   | 1411  | -   |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 11      | IADC CODE   | 537    | INTERVAL  | 2678.0- 2683.5 |
| HTC J33     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 6637.00 | TRIP TIME   | 7.5    | BIT RUN   | 5.5            |
| TOTAL HOURS | 0.97    | TOTAL TURNS | 2075   | CONDITION | T1 B1 G0.000   |

| DEPTH  | ROP | BIT RUN | HOURS | TURNS | TOTAL COST | ICOST | CCOST | I-C |
|--------|-----|---------|-------|-------|------------|-------|-------|-----|
| 2680.0 | 5.1 | 2.0     | 0.39  | 817   | 49841.06   | 1071  | 24921 | -   |
| 2683.5 | 6.1 | 5.5     | 0.97  | 2075  | 53000.90   | 903   | 9637  | -   |

|             |       |             |        |           |                |
|-------------|-------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 11    | IADC CODE   | 537    | INTERVAL  | 2683.5- 2767.7 |
| HTC J33     |       | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 0.00  | TRIP TIME   | 7.7    | BIT RUN   | 84.2           |
| TOTAL HOURS | 28.25 | TOTAL TURNS | 96616  | CONDITION | T8 B4 G0.250   |

| DEPTH  | ROP | BIT RUN | HOURS | TURNS | TOTAL COST | ICOST | CCOST | I-C |
|--------|-----|---------|-------|-------|------------|-------|-------|-----|
| 2690.0 | 6.3 | 6.5     | 1.99  | 5514  | 53073.14   | 862   | 8165  | -   |
| 2700.0 | 4.7 | 16.5    | 4.11  | 12753 | 64640.81   | 1157  | 3918  | -   |
| 2710.0 | 5.3 | 26.5    | 5.99  | 19769 | 74931.30   | 1029  | 2828  | -   |
| 2720.0 | 6.3 | 36.5    | 7.57  | 25856 | 83629.11   | 870   | 2291  | -   |
| 2730.0 | 4.9 | 46.5    | 9.62  | 33171 | 94840.40   | 1121  | 2040  | -   |
| 2740.0 | 4.1 | 56.5    | 12.07 | 42248 | 108264.09  | 1342  | 1916  | -   |
| 2750.0 | 2.6 | 66.5    | 15.94 | 56198 | 129448.12  | 2118  | 1947  | +   |
| 2760.0 | 1.9 | 76.5    | 21.28 | 72889 | 158674.97  | 2923  | 2074  | +   |
| 2767.7 | 1.1 | 84.2    | 28.25 | 96616 | 196835.83  | 4956  | 2338  | +   |



|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 12      | IADC CODE   | 617    | INTERVAL  | 2767.7- 2806.3 |
| HTC J44     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 4919.00 | TRIP TIME   | 7.8    | BIT RUN   | 38.6           |
| TOTAL HOURS | 6.93    | TOTAL TURNS | 18538  | CONDITION | T1 B1 G0.000   |

| DEPTH  | ROP | BIT RUN | HOURS | TURNS | TOTAL COST | ICOST | CCOST | I-C |
|--------|-----|---------|-------|-------|------------|-------|-------|-----|
| 2770.0 | 4.4 | 2.3     | 0.53  | 1363  | 50505.11   | 1253  | 21959 | -   |
| 2780.0 | 5.9 | 12.3    | 2.22  | 5876  | 59801.96   | 930   | 4862  | -   |
| 2790.0 | 5.4 | 22.3    | 4.07  | 10871 | 69897.13   | 1010  | 3134  | -   |
| 2800.0 | 4.8 | 32.3    | 6.16  | 16518 | 81359.65   | 1146  | 2519  | -   |
| 2806.3 | 8.3 | 38.6    | 6.93  | 18538 | 85538.90   | 663   | 2216  | -   |

|             |          |             |       |           |                |
|-------------|----------|-------------|-------|-----------|----------------|
| BIT NUMBER  | 12       | IADC CODE   | 4     | INTERVAL  | 2806.3- 2824.0 |
| CHRIS C-20  |          | SIZE        | 8.469 | NOZZLES   | 14 14 13       |
| COST        | 16085.00 | TRIP TIME   | 8.0   | BIT RUN   | 17.7           |
| TOTAL HOURS | 6.66     | TOTAL TURNS | 38355 | CONDITION | T0 B0 G0.100   |

| DEPTH  | ROP | BIT RUN | HOURS | TURNS | TOTAL COST | ICOST | CCOST | I-C |
|--------|-----|---------|-------|-------|------------|-------|-------|-----|
| 2810.0 | 6.6 | 3.7     | 0.56  | 2481  | 62943.40   | 827   | 17012 | -   |
| 2820.0 | 2.3 | 13.7    | 4.84  | 26873 | 86385.52   | 2344  | 6306  | -   |
| 2824.0 | 2.2 | 17.7    | 6.66  | 38355 | 96324.17   | 2485  | 5442  | -   |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 13      | IADC CODE   | 537    | INTERVAL  | 2824.0- 2953.4 |
| HTC J33     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 6637.00 | TRIP TIME   | 8.3    | BIT RUN   | 129.4          |
| TOTAL HOURS | 28.13   | TOTAL TURNS | 90901  | CONDITION | T3 B4 G0.063   |

| DEPTH  | ROP  | BIT RUN | HOURS | TURNS | TOTAL COST | ICOST | CCOST | I-C |
|--------|------|---------|-------|-------|------------|-------|-------|-----|
| 2830.0 | 6.3  | 6.0     | 0.96  | 2910  | 57329.42   | 875   | 9555  | -   |
| 2840.0 | 7.6  | 16.0    | 2.28  | 7127  | 64556.42   | 723   | 4035  | -   |
| 2850.0 | 8.4  | 26.0    | 3.46  | 11016 | 71042.77   | 649   | 2732  | -   |
| 2860.0 | 5.6  | 36.0    | 5.26  | 17066 | 80862.79   | 982   | 2246  | -   |
| 2870.0 | 3.7  | 46.0    | 7.96  | 24948 | 95649.85   | 1479  | 2079  | -   |
| 2880.0 | 3.0  | 56.0    | 11.30 | 34006 | 113936.35  | 1829  | 2035  | -   |
| 2890.0 | 4.9  | 66.0    | 13.35 | 40826 | 125181.40  | 1125  | 1897  | -   |
| 2900.0 | 12.5 | 76.0    | 14.15 | 43492 | 129551.57  | 437   | 1705  | -   |
| 2910.0 | 4.2  | 86.0    | 16.54 | 51029 | 142608.69  | 1306  | 1658  | -   |
| 2920.0 | 4.0  | 96.0    | 19.04 | 58955 | 156331.17  | 1372  | 1628  | -   |
| 2930.0 | 3.2  | 106.0   | 22.16 | 68601 | 173411.65  | 1708  | 1636  | +   |
| 2940.0 | 5.3  | 116.0   | 24.05 | 74758 | 183727.46  | 1032  | 1584  | -   |
| 2950.0 | 4.1  | 126.0   | 26.50 | 84397 | 197171.63  | 1344  | 1565  | -   |
| 2953.4 | 2.1  | 129.4   | 28.13 | 90901 | 206065.46  | 2616  | 1592  | +   |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 14      | IADC CODE   | 537    | INTERVAL  | 2953.4- 3085.0 |
| HTC J33     |         | SIZE        | 12.250 | NOZZLES   | 16 16 18       |
| COST        | 6637.00 | TRIP TIME   | 8.5    | BIT RUN   | 131.6          |
| TOTAL HOURS | 34.10   | TOTAL TURNS | 111908 | CONDITION | T3 B4 G0.125   |

| DEPTH  | ROP | BIT RUN | HOURS | TURNS  | TOTAL COST | ICOST | CCOST | I-C |
|--------|-----|---------|-------|--------|------------|-------|-------|-----|
| 2960.0 | 4.4 | 6.6     | 1.49  | 4938   | 61312.77   | 1233  | 9290  | -   |
| 2970.0 | 3.5 | 16.6    | 4.36  | 14277  | 77050.35   | 1574  | 4642  | -   |
| 2980.0 | 4.3 | 26.6    | 6.71  | 21777  | 89921.16   | 1287  | 3380  | -   |
| 2990.0 | 4.4 | 36.6    | 8.96  | 29106  | 102235.35  | 1231  | 2793  | -   |
| 3000.0 | 4.1 | 46.6    | 11.42 | 37142  | 115703.85  | 1347  | 2483  | -   |
| 3010.0 | 3.1 | 56.6    | 14.64 | 47748  | 133312.33  | 1761  | 2355  | -   |
| 3020.0 | 2.8 | 66.6    | 18.23 | 59314  | 152972.14  | 1966  | 2297  | -   |
| 3030.0 | 2.8 | 76.6    | 21.84 | 71085  | 172741.45  | 1977  | 2255  | -   |
| 3040.0 | 3.6 | 86.6    | 24.65 | 80436  | 188111.00  | 1537  | 2172  | -   |
| 3050.0 | 6.4 | 96.6    | 26.22 | 85756  | 196715.87  | 860   | 2036  | -   |
| 3060.0 | 6.8 | 106.6   | 27.70 | 90541  | 204820.90  | 811   | 1921  | -   |
| 3070.0 | 3.1 | 116.6   | 30.93 | 101456 | 222508.19  | 1769  | 1908  | -   |
| 3080.0 | 6.6 | 126.6   | 32.45 | 106458 | 230857.57  | 835   | 1824  | -   |
| 3085.0 | 3.0 | 131.6   | 34.10 | 111908 | 239892.84  | 1807  | 1823  | -   |

COMPUTER DATA LISTING : LIST C

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INTERVAL . . . . . 10 m average

DEPTH. . . . . Well depth, in metres

FLOW RATE. . . . . Mud flow into the well,  
in gallons per minute

PSP . . . . . Pump pressure, in pounds  
per square inch

PBIT . . . . . Bit pressure drop,  
in pounds per square inch

% PSP . . . . . Percentage of surface pressure  
dropped at the bit

HHP . . . . . Bit hydraulic horsepower

HHP/SQ IN . . . . . Bit hydraulic horsepower per  
square inch of bit diameter

IMPACT FORCE . . . . . Bit impact force, in foot  
pound per second squared

JET VELOCITY . . . . . Mud velocity through the bit  
nozzles, in metres per second

|                  |      |             |        |           |              |
|------------------|------|-------------|--------|-----------|--------------|
| BIT NUMBER       | 1    | IADC CODE   | 111    | INTERVAL  | 71.0- 208.0  |
| HTC OSC3AJ&26"HO |      | SIZE        | 26.000 | NOZZLES   | 20 20 20     |
| COST             | 0.00 | TRIP TIME   | 2.4    | BIT RUN   | 137.0        |
| TOTAL HOURS      | 2.04 | TOTAL TURNS | 15736  | CONDITION | T3 B4 G0.000 |

| DEPTH | FLOW<br>RATE | PSP    | PBIT  | %PSP | HHP | HHP/<br>sqin | IMPACT<br>FORCE | JET<br>VELOCITY |
|-------|--------------|--------|-------|------|-----|--------------|-----------------|-----------------|
| 80.0  | 862          | 1078.5 | 694.3 | 64.4 | 349 | 0.66         | 1153            | 91              |
| 90.0  | 1007         | 1386.2 | 949.0 | 68.5 | 558 | 1.05         | 1575            | 107             |
| 100.0 | 1012         | 1402.3 | 957.7 | 68.3 | 566 | 1.07         | 1590            | 107             |
| 110.0 | 1012         | 1409.2 | 958.1 | 68.0 | 566 | 1.07         | 1591            | 107             |
| 120.0 | 1006         | 1428.2 | 947.0 | 66.3 | 556 | 1.05         | 1572            | 107             |
| 130.0 | 1021         | 1391.8 | 974.6 | 70.0 | 581 | 1.09         | 1618            | 108             |
| 140.0 | 1011         | 1445.1 | 956.3 | 66.2 | 564 | 1.06         | 1588            | 107             |
| 150.0 | 1000         | 1418.5 | 935.2 | 65.9 | 546 | 1.03         | 1553            | 106             |
| 160.0 | 1000         | 1436.0 | 935.7 | 65.2 | 546 | 1.03         | 1553            | 106             |
| 170.0 | 1017         | 1460.6 | 967.4 | 66.2 | 574 | 1.08         | 1606            | 108             |
| 180.0 | 1006         | 1474.7 | 946.4 | 64.2 | 556 | 1.05         | 1571            | 107             |
| 190.0 | 1004         | 1458.0 | 942.3 | 64.6 | 552 | 1.04         | 1564            | 106             |
| 200.0 | 1004         | 1458.1 | 942.4 | 64.6 | 552 | 1.04         | 1565            | 106             |
| 208.0 | 1027         | 1525.0 | 986.2 | 64.7 | 591 | 1.11         | 1637            | 109             |

|             |         |             |        |           |              |
|-------------|---------|-------------|--------|-----------|--------------|
| BIT NUMBER  | 2       | IADC CODE   | 111    | INTERVAL  | 208.0- 825.0 |
| HTC OSC 3AJ |         | SIZE        | 17.500 | NOZZLES   | 18 18 18     |
| COST        | 4442.00 | TRIP TIME   | 3.7    | BIT RUN   | 617.0        |
| TOTAL HOURS | 12.57   | TOTAL TURNS | 107714 | CONDITION | T2 B2 G0.000 |

| DEPTH | FLOW RATE | PSP    | PBIT   | ZPSP | HHP | HHP/ sqin | IMPACT FORCE | JET VELOCITY |
|-------|-----------|--------|--------|------|-----|-----------|--------------|--------------|
| 210.0 | 1037      | 2307.0 | 1532.0 | 66.4 | 927 | 3.85      | 2060         | 136          |
| 220.0 | 1002      | 2351.5 | 1432.1 | 60.9 | 838 | 3.48      | 1926         | 131          |
| 230.0 | 1007      | 2289.3 | 1446.0 | 63.2 | 850 | 3.53      | 1945         | 132          |
| 240.0 | 961       | 1872.8 | 1317.1 | 70.3 | 739 | 3.07      | 1771         | 126          |
| 250.0 | 593       | 957.6  | 501.9  | 52.4 | 174 | 0.72      | 675          | 78           |
| 260.0 | 599       | 989.3  | 510.9  | 51.6 | 178 | 0.74      | 687          | 78           |
| 270.0 | 590       | 989.6  | 502.2  | 50.8 | 173 | 0.72      | 675          | 77           |
| 280.0 | 584       | 1046.5 | 491.8  | 47.0 | 168 | 0.70      | 661          | 76           |
| 290.0 | 590       | 1033.3 | 501.3  | 48.5 | 172 | 0.72      | 674          | 77           |
| 300.0 | 590       | 1054.0 | 501.3  | 47.6 | 172 | 0.72      | 674          | 77           |
| 310.0 | 588       | 1030.4 | 499.1  | 48.4 | 171 | 0.71      | 671          | 77           |
| 320.0 | 591       | 1038.9 | 503.5  | 48.5 | 174 | 0.72      | 677          | 77           |
| 330.0 | 596       | 1056.4 | 518.0  | 49.0 | 180 | 0.75      | 697          | 78           |
| 340.0 | 591       | 1080.7 | 509.7  | 47.2 | 176 | 0.73      | 685          | 77           |
| 350.0 | 590       | 1113.0 | 507.1  | 45.6 | 174 | 0.73      | 682          | 77           |
| 360.0 | 601       | 1102.9 | 526.2  | 47.7 | 184 | 0.77      | 708          | 79           |
| 370.0 | 587       | 1062.1 | 502.9  | 47.3 | 172 | 0.72      | 676          | 77           |
| 380.0 | 592       | 1120.4 | 511.4  | 45.6 | 177 | 0.73      | 688          | 77           |
| 390.0 | 1041      | 2672.8 | 1579.0 | 59.1 | 959 | 3.99      | 2123         | 136          |
| 400.0 | 1024      | 2676.1 | 1529.6 | 57.2 | 914 | 3.80      | 2057         | 134          |
| 410.0 | 1015      | 2640.4 | 1502.0 | 56.9 | 889 | 3.70      | 2020         | 133          |
| 420.0 | 1028      | 2646.0 | 1541.1 | 58.2 | 924 | 3.84      | 2072         | 134          |
| 430.0 | 1029      | 2613.6 | 1544.1 | 59.1 | 927 | 3.85      | 2076         | 135          |
| 440.0 | 981       | 2463.8 | 1419.3 | 57.6 | 812 | 3.38      | 1909         | 128          |
| 450.0 | 1031      | 2669.0 | 1568.2 | 58.8 | 943 | 3.92      | 2109         | 135          |
| 460.0 | 1030      | 2697.0 | 1563.8 | 58.0 | 939 | 3.91      | 2103         | 135          |
| 470.0 | 1037      | 2699.0 | 1586.4 | 58.8 | 960 | 3.99      | 2133         | 136          |
| 480.0 | 1038      | 2710.4 | 1587.7 | 58.6 | 961 | 4.00      | 2135         | 136          |
| 490.0 | 1032      | 2689.6 | 1571.7 | 58.4 | 947 | 3.94      | 2113         | 135          |
| 500.0 | 1040      | 2644.7 | 1596.3 | 60.4 | 969 | 4.03      | 2146         | 136          |
| 510.0 | 1036      | 2664.7 | 1583.1 | 59.4 | 957 | 3.98      | 2129         | 136          |
| 520.0 | 1033      | 2703.5 | 1573.5 | 58.2 | 948 | 3.94      | 2116         | 135          |
| 530.0 | 1033      | 2654.1 | 1575.1 | 59.3 | 950 | 3.95      | 2118         | 135          |
| 540.0 | 1039      | 2663.0 | 1592.1 | 59.8 | 965 | 4.01      | 2141         | 136          |
| 550.0 | 1043      | 2672.2 | 1605.8 | 60.1 | 978 | 4.06      | 2159         | 137          |
| 560.0 | 1034      | 2661.3 | 1559.6 | 58.6 | 941 | 3.91      | 2097         | 135          |
| 570.0 | 1039      | 2648.9 | 1573.1 | 59.4 | 953 | 3.96      | 2115         | 136          |
| 580.0 | 1038      | 2658.9 | 1551.8 | 58.4 | 939 | 3.91      | 2087         | 136          |
| 590.0 | 1032      | 2675.0 | 1552.9 | 58.1 | 935 | 3.89      | 2088         | 135          |
| 600.0 | 1032      | 2660.0 | 1552.9 | 58.4 | 935 | 3.89      | 2088         | 135          |
| 610.0 | 1037      | 2666.0 | 1567.7 | 58.8 | 948 | 3.94      | 2108         | 136          |
| 620.0 | 1031      | 2693.5 | 1549.2 | 57.5 | 932 | 3.87      | 2083         | 135          |
| 630.0 | 1020      | 2653.2 | 1516.7 | 57.2 | 902 | 3.75      | 2039         | 133          |

| DEPTH | FLOW<br>RATE | PSP    | PRIT   | ZPSP | HHP | HHP/<br>sqin | IMPACT<br>FORCE | JET<br>VELOCITY |
|-------|--------------|--------|--------|------|-----|--------------|-----------------|-----------------|
| 640.0 | 1023         | 2671.7 | 1525.3 | 57.1 | 910 | 3.78         | 2051            | 134             |
| 650.0 | 1020         | 2693.2 | 1517.5 | 56.3 | 903 | 3.76         | 2041            | 133             |
| 660.0 | 1024         | 2711.2 | 1528.7 | 56.4 | 913 | 3.80         | 2056            | 134             |
| 670.0 | 1024         | 2800.0 | 1529.4 | 54.6 | 914 | 3.80         | 2057            | 134             |
| 680.0 | 1040         | 2907.0 | 1576.6 | 54.2 | 956 | 3.98         | 2120            | 136             |
| 690.0 | 1009         | 2706.8 | 1484.8 | 54.9 | 874 | 3.63         | 1997            | 132             |
| 700.0 | 1013         | 2750.4 | 1496.6 | 54.4 | 885 | 3.68         | 2013            | 133             |
| 710.0 | 1009         | 2728.5 | 1485.2 | 54.4 | 875 | 3.64         | 1997            | 132             |
| 720.0 | 987          | 2657.0 | 1419.9 | 53.4 | 817 | 3.40         | 1909            | 129             |
| 730.0 | 989          | 2625.6 | 1426.3 | 54.3 | 823 | 3.42         | 1918            | 129             |
| 740.0 | 989          | 2642.7 | 1426.3 | 54.0 | 823 | 3.42         | 1918            | 129             |
| 750.0 | 992          | 2657.8 | 1435.5 | 54.0 | 831 | 3.45         | 1930            | 131             |
| 760.0 | 985          | 2689.0 | 1415.1 | 52.6 | 813 | 3.38         | 1903            | 129             |
| 770.0 | 973          | 2671.6 | 1380.9 | 51.7 | 784 | 3.26         | 1857            | 127             |
| 780.0 | 980          | 2651.1 | 1383.9 | 52.2 | 791 | 3.29         | 1861            | 128             |
| 790.0 | 983          | 2697.9 | 1393.1 | 51.6 | 799 | 3.32         | 1873            | 129             |
| 800.0 | 985          | 2667.3 | 1399.2 | 52.5 | 804 | 3.34         | 1882            | 129             |
| 810.0 | 979          | 2679.8 | 1381.2 | 51.5 | 789 | 3.28         | 1857            | 128             |
| 820.0 | 980          | 2649.1 | 1383.6 | 52.2 | 791 | 3.29         | 1861            | 128             |
| 825.0 | 983          | 2650.0 | 1392.5 | 52.5 | 798 | 3.32         | 1872            | 129             |



|             |         |             |        |           |               |
|-------------|---------|-------------|--------|-----------|---------------|
| BIT NUMBER  | 3       | IADC CODE   | 114    | INTERVAL  | 825.0- 1271.0 |
| HTC X3A     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16      |
| COST        | 2201.00 | TRIP TIME   | 4.7    | BIT RUN   | 446.0         |
| TOTAL HOURS | 18.77   | TOTAL TURNS | 166290 | CONDITION | T6 B8 G0.063  |

| DEPTH  | FLOW RATE | PSP    | PBIT   | %PSP | HHP | HHP/ sqin | IMPACT FORCE | JET VELOCITY |
|--------|-----------|--------|--------|------|-----|-----------|--------------|--------------|
| 830.0  | 594       | 1319.3 | 842.9  | 63.9 | 292 | 2.48      | 896          | 98           |
| 840.0  | 590       | 1252.0 | 830.7  | 66.3 | 286 | 2.42      | 883          | 98           |
| 850.0  | 592       | 1344.6 | 836.6  | 62.2 | 289 | 2.45      | 889          | 98           |
| 860.0  | 852       | 2761.0 | 1734.1 | 62.8 | 862 | 7.31      | 1843         | 141          |
| 870.0  | 845       | 2708.9 | 1704.4 | 62.9 | 840 | 7.13      | 1811         | 140          |
| 880.0  | 847       | 2773.9 | 1731.4 | 62.4 | 855 | 7.26      | 1840         | 140          |
| 890.0  | 849       | 2757.3 | 1741.0 | 63.1 | 862 | 7.32      | 1850         | 141          |
| 900.0  | 846       | 2772.5 | 1730.1 | 62.4 | 854 | 7.25      | 1838         | 140          |
| 910.0  | 851       | 2812.6 | 1750.2 | 62.2 | 869 | 7.37      | 1860         | 141          |
| 920.0  | 847       | 2746.6 | 1730.9 | 63.0 | 855 | 7.25      | 1839         | 140          |
| 930.0  | 830       | 2708.3 | 1665.0 | 61.5 | 807 | 6.84      | 1769         | 137          |
| 940.0  | 831       | 2823.4 | 1649.2 | 58.4 | 800 | 6.78      | 1752         | 138          |
| 950.0  | 835       | 2754.3 | 1666.9 | 60.5 | 812 | 6.89      | 1771         | 138          |
| 960.0  | 854       | 2903.8 | 1740.7 | 59.9 | 867 | 7.36      | 1849         | 141          |
| 970.0  | 839       | 2852.3 | 1683.0 | 59.0 | 824 | 6.99      | 1788         | 139          |
| 980.0  | 841       | 2813.4 | 1688.5 | 60.0 | 828 | 7.03      | 1794         | 139          |
| 990.0  | 831       | 2789.0 | 1651.1 | 59.2 | 801 | 6.79      | 1754         | 138          |
| 1000.0 | 847       | 2801.5 | 1715.1 | 61.2 | 848 | 7.19      | 1822         | 140          |
| 1010.0 | 844       | 2858.1 | 1703.1 | 59.6 | 839 | 7.12      | 1810         | 140          |
| 1020.0 | 846       | 2851.4 | 1728.8 | 60.6 | 853 | 7.24      | 1837         | 140          |
| 1030.0 | 843       | 2874.2 | 1718.3 | 59.8 | 846 | 7.17      | 1826         | 140          |
| 1040.0 | 846       | 2862.1 | 1729.1 | 60.4 | 854 | 7.24      | 1837         | 140          |
| 1050.0 | 850       | 2802.5 | 1745.0 | 62.3 | 865 | 7.34      | 1854         | 141          |
| 1060.0 | 843       | 2789.4 | 1716.7 | 61.5 | 844 | 7.16      | 1824         | 140          |
| 1070.0 | 838       | 2797.7 | 1696.6 | 60.6 | 830 | 7.04      | 1803         | 139          |
| 1080.0 | 844       | 2901.7 | 1719.2 | 59.2 | 846 | 7.18      | 1827         | 140          |
| 1090.0 | 844       | 2871.6 | 1722.1 | 60.0 | 848 | 7.20      | 1830         | 140          |
| 1100.0 | 828       | 2859.7 | 1675.5 | 58.6 | 810 | 6.87      | 1780         | 137          |
| 1110.0 | 830       | 2864.8 | 1681.9 | 58.7 | 814 | 6.91      | 1787         | 137          |
| 1120.0 | 830       | 2870.0 | 1684.1 | 58.7 | 816 | 6.92      | 1789         | 138          |
| 1130.0 | 830       | 2870.0 | 1684.1 | 58.7 | 816 | 6.92      | 1789         | 138          |
| 1140.0 | 830       | 2870.0 | 1684.1 | 58.7 | 816 | 6.92      | 1789         | 138          |
| 1150.0 | 832       | 2846.8 | 1690.8 | 59.4 | 821 | 6.96      | 1796         | 138          |
| 1160.0 | 826       | 2883.8 | 1649.2 | 57.2 | 795 | 6.75      | 1752         | 137          |
| 1170.0 | 833       | 2892.3 | 1676.2 | 58.0 | 815 | 6.91      | 1781         | 138          |
| 1180.0 | 828       | 2817.2 | 1672.3 | 59.4 | 807 | 6.85      | 1777         | 137          |
| 1190.0 | 816       | 2896.4 | 1625.2 | 56.1 | 774 | 6.56      | 1727         | 135          |
| 1200.0 | 830       | 2906.6 | 1682.6 | 57.9 | 815 | 6.91      | 1788         | 137          |
| 1210.0 | 817       | 2904.5 | 1628.4 | 56.1 | 776 | 6.58      | 1730         | 135          |
| 1220.0 | 809       | 2823.6 | 1596.5 | 56.5 | 753 | 6.39      | 1696         | 134          |
| 1230.0 | 797       | 2744.7 | 1552.2 | 56.6 | 722 | 6.13      | 1649         | 132          |
| 1240.0 | 799       | 2735.7 | 1575.6 | 57.6 | 734 | 6.23      | 1674         | 132          |
| 1250.0 | 794       | 2698.8 | 1555.3 | 57.6 | 720 | 6.11      | 1652         | 131          |

| DEPTH  | FLOW<br>RATE | PSP    | PBIT   | ZPSP | HHP | HHP/<br>sqin | IMPACT<br>FORCE | JET<br>VELOCITY |
|--------|--------------|--------|--------|------|-----|--------------|-----------------|-----------------|
| 1260.0 | 791          | 2701.8 | 1542.8 | 57.1 | 712 | 6.04         | 1639            | 131             |
| 1270.0 | 796          | 2752.7 | 1545.9 | 56.2 | 718 | 6.09         | 1642            | 132             |
| 1271.0 | 792          | 2748.5 | 1530.0 | 55.7 | 707 | 6.00         | 1626            | 131             |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 4       | IADC CODE   | 114    | INTERVAL  | 1271.0- 1624.0 |
| HTC X3A     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 2201.00 | TRIP TIME   | 5.4    | BIT RUN   | 353.0          |
| TOTAL HOURS | 15.10   | TOTAL TURNS | 122032 | CONDITION | T8 B8 G1.500   |

| DEPTH  | FLOW RATE | PSP    | PBIT   | ZPSP | HHP | HHP/<br>sq in | IMPACT FORCE | JET VELOCITY |
|--------|-----------|--------|--------|------|-----|---------------|--------------|--------------|
| 1280.0 | 596       | 1577.3 | 867.9  | 55.0 | 302 | 2.56          | 922          | 99           |
| 1290.0 | 593       | 1547.5 | 857.7  | 55.4 | 297 | 2.52          | 911          | 98           |
| 1300.0 | 600       | 1610.2 | 879.4  | 54.6 | 308 | 2.61          | 934          | 99           |
| 1310.0 | 720       | 2226.8 | 1266.8 | 56.9 | 532 | 4.52          | 1346         | 119          |
| 1320.0 | 578       | 1521.3 | 817.2  | 53.7 | 276 | 2.34          | 868          | 96           |
| 1330.0 | 717       | 2223.1 | 1269.2 | 57.1 | 531 | 4.51          | 1349         | 119          |
| 1340.0 | 740       | 2422.6 | 1350.1 | 55.7 | 583 | 4.94          | 1434         | 122          |
| 1350.0 | 741       | 2425.1 | 1356.8 | 55.9 | 587 | 4.98          | 1442         | 123          |
| 1360.0 | 757       | 2546.3 | 1414.1 | 55.5 | 624 | 5.30          | 1502         | 125          |
| 1370.0 | 748       | 2473.9 | 1380.0 | 55.8 | 602 | 5.11          | 1466         | 124          |
| 1380.0 | 753       | 2535.5 | 1399.7 | 55.2 | 615 | 5.22          | 1487         | 125          |
| 1390.0 | 753       | 2546.2 | 1400.5 | 55.0 | 615 | 5.22          | 1488         | 125          |
| 1400.0 | 749       | 2586.2 | 1385.7 | 53.6 | 606 | 5.14          | 1472         | 124          |
| 1410.0 | 758       | 2575.6 | 1419.3 | 55.1 | 628 | 5.33          | 1508         | 126          |
| 1420.0 | 749       | 2552.0 | 1401.4 | 54.9 | 613 | 5.20          | 1489         | 124          |
| 1430.0 | 756       | 2550.6 | 1424.1 | 55.8 | 628 | 5.33          | 1513         | 125          |
| 1440.0 | 742       | 2533.1 | 1374.6 | 54.3 | 595 | 5.05          | 1460         | 123          |
| 1450.0 | 751       | 2605.8 | 1408.6 | 54.1 | 618 | 5.24          | 1497         | 124          |
| 1460.0 | 754       | 2577.5 | 1418.9 | 55.0 | 624 | 5.30          | 1508         | 125          |
| 1470.0 | 755       | 2609.9 | 1423.1 | 54.5 | 627 | 5.32          | 1512         | 125          |
| 1480.0 | 756       | 2609.5 | 1424.4 | 54.6 | 628 | 5.33          | 1513         | 125          |
| 1490.0 | 760       | 2672.3 | 1439.8 | 53.9 | 638 | 5.41          | 1530         | 126          |
| 1500.0 | 757       | 2647.4 | 1430.6 | 54.0 | 632 | 5.36          | 1520         | 125          |
| 1510.0 | 625       | 1902.7 | 975.4  | 51.3 | 356 | 3.02          | 1036         | 104          |
| 1520.0 | 761       | 2687.2 | 1446.4 | 53.8 | 643 | 5.45          | 1537         | 126          |
| 1530.0 | 755       | 2639.1 | 1454.1 | 55.1 | 641 | 5.44          | 1545         | 125          |
| 1540.0 | 754       | 2660.1 | 1448.1 | 54.4 | 637 | 5.40          | 1539         | 125          |
| 1550.0 | 746       | 2630.7 | 1419.9 | 54.0 | 618 | 5.25          | 1509         | 124          |
| 1560.0 | 828       | 2779.8 | 1745.2 | 62.8 | 843 | 7.15          | 1854         | 137          |
| 1570.0 | 787       | 2869.9 | 1594.3 | 55.6 | 732 | 6.21          | 1694         | 130          |
| 1580.0 | 790       | 2882.7 | 1605.0 | 55.7 | 739 | 6.27          | 1705         | 131          |
| 1590.0 | 772       | 2756.3 | 1518.1 | 55.1 | 684 | 5.80          | 1613         | 128          |
| 1600.0 | 762       | 2670.8 | 1479.8 | 55.4 | 658 | 5.58          | 1572         | 126          |
| 1610.0 | 799       | 2834.0 | 1625.3 | 57.4 | 757 | 6.43          | 1727         | 132          |
| 1620.0 | 791       | 2822.8 | 1594.9 | 56.5 | 736 | 6.25          | 1695         | 131          |
| 1624.0 | 795       | 2893.5 | 1612.5 | 55.7 | 748 | 6.35          | 1713         | 132          |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 5       | IADC CODE   | 517    | INTERVAL  | 1624.0- 1626.0 |
| HTC J22     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 6788.00 | TRIP TIME   | 5.4    | BIT RUN   | 2.0            |
| TOTAL HOURS | 1.66    | TOTAL TURNS | 6146   | CONDITION | T8 B2 G0.125   |

| DEPTH  | FLOW<br>RATE | PSP    | PBIT   | %PSP | HHP | HHP/<br>sqin | IMPACT<br>FORCE | JET<br>VELOCITY |
|--------|--------------|--------|--------|------|-----|--------------|-----------------|-----------------|
| 1626.0 | 818          | 2980.9 | 1721.9 | 57.8 | 822 | 6.97         | 1829            | 135             |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 6       | IADC CODE   | 316    | INTERVAL  | 1626.0- 1663.0 |
| HTC J7      |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 1761.00 | TRIP TIME   | 5.5    | BIT RUN   | 37.0           |
| TOTAL HOURS | 3.99    | TOTAL TURNS | 26591  | CONDITION | T5 B2 G0.375   |

| DEPTH  | FLOW<br>RATE | PSP    | PBIT   | %PSP | HHP | HHP/<br>sqin | IMPACT<br>FORCE | JET<br>VELOCITY |
|--------|--------------|--------|--------|------|-----|--------------|-----------------|-----------------|
| 1630.0 | 780          | 3061.1 | 1549.7 | 50.6 | 705 | 5.98         | 1647            | 129             |
| 1640.0 | 780          | 2910.6 | 1550.1 | 53.3 | 705 | 5.99         | 1647            | 129             |
| 1650.0 | 785          | 2953.7 | 1568.5 | 53.1 | 718 | 6.09         | 1667            | 130             |
| 1660.0 | 785          | 3026.0 | 1568.6 | 51.8 | 718 | 6.09         | 1667            | 130             |
| 1663.0 | 790          | 3009.2 | 1591.4 | 52.9 | 734 | 6.23         | 1691            | 131             |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 7       | IADC CODE   | 517    | INTERVAL  | 1663.0- 2058.0 |
| HTC J22     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 6788.00 | TRIP TIME   | 6.4    | BIT RUN   | 395.0          |
| TOTAL HOURS | 46.42   | TOTAL TURNS | 174195 | CONDITION | T4 B3 G0.125   |

| DEPTH  | FLOW RATE | PSP    | PBIT   | %PSP | HHP | HHP/sqin | IMPACT FORCE | JET VELOCITY |
|--------|-----------|--------|--------|------|-----|----------|--------------|--------------|
| 1670.0 | 827       | 2936.8 | 1741.7 | 59.3 | 840 | 7.13     | 1851         | 137          |
| 1680.0 | 798       | 2966.1 | 1624.1 | 54.8 | 757 | 6.42     | 1726         | 132          |
| 1690.0 | 764       | 2940.0 | 1487.3 | 50.6 | 663 | 5.62     | 1580         | 127          |
| 1700.0 | 767       | 3010.1 | 1501.0 | 49.9 | 672 | 5.70     | 1595         | 127          |
| 1710.0 | 767       | 2985.2 | 1499.3 | 50.2 | 671 | 5.69     | 1593         | 127          |
| 1720.0 | 764       | 2982.5 | 1485.5 | 49.8 | 662 | 5.61     | 1578         | 126          |
| 1730.0 | 758       | 2998.8 | 1464.6 | 48.8 | 648 | 5.50     | 1556         | 126          |
| 1740.0 | 768       | 2976.6 | 1502.4 | 50.5 | 673 | 5.71     | 1596         | 127          |
| 1750.0 | 767       | 3006.0 | 1500.1 | 49.9 | 672 | 5.70     | 1594         | 127          |
| 1760.0 | 760       | 3000.1 | 1473.6 | 49.1 | 654 | 5.55     | 1566         | 126          |
| 1770.0 | 802       | 2946.6 | 1637.0 | 55.6 | 766 | 6.50     | 1739         | 133          |
| 1780.0 | 765       | 2927.4 | 1491.1 | 50.9 | 666 | 5.65     | 1584         | 127          |
| 1790.0 | 767       | 2987.6 | 1497.4 | 50.1 | 670 | 5.68     | 1591         | 127          |
| 1800.0 | 757       | 2992.6 | 1460.0 | 48.8 | 645 | 5.47     | 1551         | 125          |
| 1810.0 | 759       | 3014.7 | 1468.5 | 48.7 | 650 | 5.52     | 1560         | 126          |
| 1820.0 | 763       | 2964.9 | 1485.1 | 50.1 | 661 | 5.61     | 1578         | 126          |
| 1830.0 | 766       | 2979.9 | 1495.8 | 50.2 | 669 | 5.67     | 1589         | 127          |
| 1840.0 | 768       | 2972.5 | 1503.1 | 50.6 | 674 | 5.71     | 1597         | 127          |
| 1850.0 | 769       | 2989.6 | 1505.2 | 50.3 | 675 | 5.73     | 1599         | 127          |
| 1860.0 | 772       | 3080.7 | 1503.9 | 48.8 | 678 | 5.75     | 1598         | 128          |
| 1870.0 | 756       | 2975.0 | 1456.9 | 49.0 | 643 | 5.45     | 1548         | 125          |
| 1880.0 | 752       | 2893.9 | 1442.1 | 49.8 | 633 | 5.37     | 1532         | 125          |
| 1890.0 | 760       | 3049.5 | 1470.9 | 48.2 | 652 | 5.53     | 1563         | 126          |
| 1900.0 | 749       | 2969.8 | 1430.6 | 48.2 | 625 | 5.31     | 1520         | 124          |
| 1910.0 | 743       | 2865.3 | 1407.2 | 49.1 | 610 | 5.18     | 1495         | 123          |
| 1920.0 | 744       | 2882.0 | 1412.3 | 49.0 | 613 | 5.21     | 1501         | 123          |
| 1930.0 | 755       | 2954.2 | 1469.1 | 49.7 | 647 | 5.49     | 1561         | 125          |
| 1940.0 | 605       | 1720.0 | 932.3  | 54.2 | 329 | 2.79     | 991          | 100          |
| 1950.0 | 596       | 1650.0 | 905.5  | 54.9 | 315 | 2.67     | 962          | 99           |
| 1960.0 | 746       | 2953.2 | 1404.1 | 47.5 | 611 | 5.19     | 1492         | 124          |
| 1970.0 | 760       | 2901.0 | 1458.2 | 50.3 | 647 | 5.49     | 1549         | 126          |
| 1980.0 | 757       | 2965.3 | 1444.0 | 48.7 | 638 | 5.41     | 1534         | 125          |
| 1990.0 | 758       | 2966.0 | 1447.7 | 48.8 | 640 | 5.43     | 1538         | 125          |
| 2000.0 | 752       | 2892.7 | 1424.6 | 49.2 | 625 | 5.30     | 1514         | 124          |
| 2010.0 | 741       | 2863.5 | 1383.6 | 48.3 | 598 | 5.07     | 1470         | 123          |
| 2020.0 | 744       | 2894.7 | 1379.4 | 47.7 | 598 | 5.08     | 1466         | 123          |
| 2030.0 | 747       | 2976.2 | 1406.8 | 47.3 | 613 | 5.20     | 1495         | 124          |
| 2040.0 | 720       | 2804.1 | 1306.4 | 46.6 | 549 | 4.66     | 1388         | 119          |
| 2050.0 | 742       | 2855.3 | 1374.3 | 48.1 | 595 | 5.05     | 1460         | 123          |
| 2058.0 | 742       | 2950.0 | 1388.3 | 47.1 | 601 | 5.10     | 1475         | 123          |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 8       | IADC CODE   | 517    | INTERVAL  | 2058.0- 2253.0 |
| HTC J22     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 6788.00 | TRIP TIME   | 6.8    | BIT RUN   | 195.0          |
| TOTAL HOURS | 26.10   | TOTAL TURNS | 89647  | CONDITION | T2 B2 G0.000   |

| DEPTH  | FLOW RATE | PSP    | PBIT   | %PSP | HHP | HHP/ sqin | IMPACT FORCE | JET VELOCITY |
|--------|-----------|--------|--------|------|-----|-----------|--------------|--------------|
| 2060.0 | 716       | 2775.0 | 1291.4 | 46.5 | 539 | 4.57      | 1372         | 118          |
| 2070.0 | 743       | 2916.5 | 1392.7 | 47.8 | 604 | 5.12      | 1480         | 123          |
| 2080.0 | 733       | 2871.8 | 1355.4 | 47.2 | 580 | 4.92      | 1440         | 121          |
| 2090.0 | 726       | 2881.0 | 1328.7 | 46.1 | 563 | 4.77      | 1412         | 120          |
| 2100.0 | 735       | 2826.4 | 1361.2 | 48.2 | 583 | 4.95      | 1446         | 122          |
| 2110.0 | 737       | 2815.2 | 1371.4 | 48.7 | 590 | 5.01      | 1457         | 122          |
| 2120.0 | 731       | 2766.0 | 1347.2 | 48.7 | 575 | 4.87      | 1431         | 121          |
| 2130.0 | 733       | 2861.3 | 1354.1 | 47.3 | 579 | 4.91      | 1439         | 121          |
| 2140.0 | 732       | 2809.9 | 1350.7 | 48.1 | 577 | 4.89      | 1435         | 121          |
| 2150.0 | 733       | 2884.7 | 1356.0 | 47.0 | 580 | 4.92      | 1441         | 121          |
| 2160.0 | 734       | 2850.7 | 1358.1 | 47.6 | 582 | 4.93      | 1443         | 122          |
| 2170.0 | 738       | 2786.6 | 1359.3 | 48.8 | 585 | 4.97      | 1444         | 122          |
| 2180.0 | 735       | 2812.8 | 1333.9 | 47.4 | 572 | 4.85      | 1417         | 122          |
| 2190.0 | 735       | 2926.6 | 1319.0 | 45.1 | 566 | 4.80      | 1401         | 122          |
| 2200.0 | 738       | 2904.5 | 1330.2 | 45.8 | 573 | 4.86      | 1413         | 122          |
| 2210.0 | 728       | 2868.5 | 1293.8 | 45.1 | 549 | 4.66      | 1375         | 121          |
| 2220.0 | 730       | 2733.9 | 1313.8 | 48.1 | 559 | 4.74      | 1396         | 121          |
| 2230.0 | 721       | 2767.9 | 1268.8 | 45.8 | 534 | 4.53      | 1348         | 119          |
| 2240.0 | 732       | 2714.8 | 1310.1 | 48.3 | 560 | 4.75      | 1392         | 121          |
| 2250.0 | 526       | 1531.2 | 675.1  | 44.1 | 207 | 1.76      | 717          | 87           |
| 2253.0 | 474       | 1333.5 | 548.7  | 41.1 | 152 | 1.29      | 583          | 78           |

|             |      |             |       |           |                |
|-------------|------|-------------|-------|-----------|----------------|
| BIT NUMBER  | 8    | IADC CODE   | 4     | INTERVAL  | 2253.0- 2265.1 |
| CHRIS RC3   |      | SIZE        | 8.500 | NOZZLES   | 15 15 14       |
| COST        | 0.00 | TRIP TIME   | 6.8   | BIT RUN   | 12.1           |
| TOTAL HOURS | 2.42 | TOTAL TURNS | 10122 | CONDITION | TO B0 G0.700   |

| DEPTH  | FLOW<br>RATE | PSP   | PBIT  | ZPSP | HHP | HHP/<br>sqin | IMPACT<br>FORCE | JET<br>VELOCITY |
|--------|--------------|-------|-------|------|-----|--------------|-----------------|-----------------|
| 2260.0 | 308          | 715.3 | 331.6 | 46.4 | 60  | 1.05         | 296             | 61              |
| 2265.1 | 310          | 575.0 | 330.8 | 57.5 | 60  | 1.05         | 296             | 61              |



|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 9       | IADC CODE   | 517    | INTERVAL  | 2265.1- 2450.0 |
| HTC J22     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 6788.00 | TRIP TIME   | 7.2    | BIT RUN   | 184.9          |
| TOTAL HOURS | 38.89   | TOTAL TURNS | 125062 | CONDITION | T3 B4 G0.125   |

| DEPTH  | FLOW RATE | PSP    | PBIT   | %PSP | HHP | HHP/<br>sqin | IMPACT<br>FORCE | JET<br>VELOCITY |
|--------|-----------|--------|--------|------|-----|--------------|-----------------|-----------------|
| 2270.0 | 712       | 3019.6 | 1252.9 | 41.5 | 521 | 4.42         | 1331            | 118             |
| 2280.0 | 710       | 2937.4 | 1243.8 | 42.3 | 515 | 4.37         | 1321            | 118             |
| 2290.0 | 720       | 3018.9 | 1280.0 | 42.4 | 538 | 4.56         | 1360            | 119             |
| 2300.0 | 702       | 2955.6 | 1201.8 | 40.7 | 492 | 4.17         | 1277            | 116             |
| 2310.0 | 698       | 2883.1 | 1190.9 | 41.3 | 485 | 4.12         | 1265            | 116             |
| 2320.0 | 693       | 2832.9 | 1171.1 | 41.3 | 473 | 4.01         | 1244            | 115             |
| 2330.0 | 709       | 2942.4 | 1226.5 | 41.7 | 507 | 4.30         | 1303            | 117             |
| 2340.0 | 693       | 2959.0 | 1172.0 | 39.6 | 474 | 4.02         | 1245            | 115             |
| 2350.0 | 711       | 2937.2 | 1235.4 | 42.1 | 513 | 4.35         | 1313            | 118             |
| 2360.0 | 720       | 2953.7 | 1251.1 | 42.4 | 525 | 4.46         | 1329            | 119             |
| 2370.0 | 712       | 2986.9 | 1237.1 | 41.4 | 514 | 4.36         | 1314            | 118             |
| 2380.0 | 706       | 2946.9 | 1217.5 | 41.3 | 502 | 4.26         | 1294            | 117             |
| 2390.0 | 712       | 2990.9 | 1238.6 | 41.4 | 515 | 4.37         | 1316            | 118             |
| 2400.0 | 704       | 3030.5 | 1211.8 | 40.0 | 498 | 4.23         | 1288            | 117             |
| 2410.0 | 614       | 2322.3 | 911.3  | 39.2 | 327 | 2.77         | 968             | 102             |
| 2420.0 | 694       | 2987.7 | 1176.1 | 39.4 | 476 | 4.04         | 1250            | 115             |
| 2430.0 | 529       | 1702.0 | 684.2  | 40.2 | 211 | 1.79         | 727             | 88              |
| 2440.0 | 713       | 2939.7 | 1239.7 | 42.2 | 515 | 4.37         | 1317            | 118             |
| 2450.0 | 707       | 3065.6 | 1219.4 | 39.8 | 503 | 4.27         | 1296            | 117             |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 10      | IADC CODE   | 517    | INTERVAL  | 2450.0- 2678.0 |
| HTC J22     |         | SIZE        | 12.250 | NOZZLES   | 15 15 16       |
| COST        | 6788.00 | TRIP TIME   | 7.3    | BIT RUN   | 228.0          |
| TOTAL HOURS | 50.23   | TOTAL TURNS | 192705 | CONDITION | T6 B4 G0.250   |

| DEPTH  | FLOW RATE | PSP    | PBIT   | ZPSP | HHP  | HHP/<br>sq in | IMPACT<br>FORCE | JET<br>VELOCITY |
|--------|-----------|--------|--------|------|------|---------------|-----------------|-----------------|
| 2460.0 | 663       | 2928.5 | 1327.1 | 45.3 | 514  | 4.36          | 1296            | 119             |
| 2470.0 | 665       | 2888.7 | 1334.9 | 46.2 | 518  | 4.40          | 1304            | 120             |
| 2480.0 | 659       | 2845.2 | 1309.5 | 46.0 | 503  | 4.27          | 1279            | 119             |
| 2490.0 | 669       | 2805.3 | 1348.9 | 48.1 | 526  | 4.47          | 1317            | 120             |
| 2500.0 | 681       | 2804.4 | 1383.1 | 49.3 | 549  | 4.66          | 1351            | 123             |
| 2510.0 | 680       | 2846.8 | 1379.3 | 48.5 | 547  | 4.64          | 1347            | 122             |
| 2520.0 | 672       | 2801.9 | 1334.1 | 47.6 | 523  | 4.44          | 1303            | 121             |
| 2530.0 | 684       | 2859.9 | 1380.3 | 48.3 | 551  | 4.67          | 1348            | 123             |
| 2540.0 | 681       | 2815.8 | 1370.0 | 48.7 | 544  | 4.62          | 1338            | 123             |
| 2550.0 | 723       | 2897.2 | 1526.1 | 52.7 | 644  | 5.46          | 1491            | 130             |
| 2560.0 | 676       | 2932.6 | 1333.6 | 45.5 | 526  | 4.46          | 1303            | 122             |
| 2570.0 | 703       | 2904.2 | 1445.1 | 49.8 | 593  | 5.03          | 1411            | 127             |
| 2580.0 | 710       | 2849.2 | 1486.9 | 52.2 | 616  | 5.22          | 1452            | 128             |
| 2590.0 | 712       | 2776.1 | 1482.5 | 53.4 | 616  | 5.23          | 1448            | 128             |
| 2600.0 | 719       | 2934.7 | 1510.4 | 51.5 | 634  | 5.38          | 1475            | 130             |
| 2610.0 | 787       | 2954.6 | 1792.0 | 60.7 | 823  | 6.99          | 1750            | 142             |
| 2620.0 | 468       | 1066.0 | 631.7  | 59.3 | 172  | 1.46          | 617             | 84              |
| 2630.0 | 501       | 1220.0 | 726.0  | 59.5 | 212  | 1.80          | 709             | 90              |
| 2640.0 | 800       | 2484.8 | 1851.1 | 74.5 | 864  | 7.33          | 1808            | 144             |
| 2650.0 | 819       | 2522.8 | 1936.7 | 76.8 | 925  | 7.85          | 1892            | 147             |
| 2660.0 | 576       | 1275.3 | 958.0  | 75.1 | 322  | 2.73          | 936             | 104             |
| 2670.0 | 888       | 2730.3 | 2278.4 | 83.4 | 1180 | 10.01         | 2225            | 160             |
| 2678.0 | 917       | 2837.6 | 2430.6 | 85.7 | 1301 | 11.03         | 2374            | 165             |

|             |       |             |        |           |                |
|-------------|-------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 11    | IADC CODE   | 537    | INTERVAL  | 2683.5- 2767.7 |
| HTC J33     |       | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 0.00  | TRIP TIME   | 7.7    | BIT RUN   | 84.2           |
| TOTAL HOURS | 28.25 | TOTAL TURNS | 96616  | CONDITION | T8 B4 G0.250   |

| DEPTH  | FLOW<br>RATE | PSP    | PBIT   | ZPSP | HHP | HHP/<br>sqin | IMPACT<br>FORCE | JET<br>VELOCITY |
|--------|--------------|--------|--------|------|-----|--------------|-----------------|-----------------|
| 2690.0 | 735          | 2806.3 | 1320.7 | 47.1 | 567 | 4.81         | 1403            | 122             |
| 2700.0 | 741          | 2831.9 | 1342.3 | 47.4 | 581 | 4.93         | 1426            | 123             |
| 2710.0 | 743          | 2854.1 | 1349.7 | 47.3 | 585 | 4.97         | 1434            | 123             |
| 2720.0 | 727          | 2743.9 | 1290.3 | 47.0 | 547 | 4.64         | 1371            | 120             |
| 2730.0 | 742          | 2928.4 | 1343.0 | 45.9 | 581 | 4.93         | 1427            | 123             |
| 2740.0 | 742          | 2923.2 | 1343.0 | 45.9 | 581 | 4.93         | 1427            | 123             |
| 2750.0 | 738          | 2894.6 | 1330.1 | 46.0 | 573 | 4.86         | 1413            | 122             |
| 2760.0 | 742          | 2915.6 | 1343.3 | 46.1 | 581 | 4.93         | 1427            | 123             |
| 2767.7 | 747          | 2933.4 | 1347.2 | 45.9 | 587 | 4.98         | 1431            | 124             |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 12      | IADC CODE   | 617    | INTERVAL  | 2767.7- 2806.3 |
| HTC J44     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 4919.00 | TRIP TIME   | 7.8    | BIT RUN   | 38.6           |
| TOTAL HOURS | 6.93    | TOTAL TURNS | 18538  | CONDITION | T1 B1 G0.000   |

| DEPTH  | FLOW RATE | PSP    | PBIT   | ZPSP | HHP | HHP/<br>sqin | IMPACT<br>FORCE | JET<br>VELOCITY |
|--------|-----------|--------|--------|------|-----|--------------|-----------------|-----------------|
| 2770.0 | 750       | 2952.4 | 1359.0 | 46.0 | 595 | 5.05         | 1444            | 124             |
| 2780.0 | 749       | 2909.4 | 1353.3 | 46.5 | 591 | 5.01         | 1438            | 124             |
| 2790.0 | 726       | 2859.7 | 1273.9 | 44.5 | 540 | 4.58         | 1354            | 120             |
| 2800.0 | 743       | 2902.4 | 1348.6 | 46.5 | 585 | 4.96         | 1433            | 123             |
| 2806.3 | 741       | 2917.3 | 1340.4 | 45.9 | 579 | 4.92         | 1424            | 123             |

|             |          |             |       |           |                |
|-------------|----------|-------------|-------|-----------|----------------|
| BIT NUMBER  | 12       | IADC CODE   | 4     | INTERVAL  | 2806.3- 2824.0 |
| CHRIS C-20  |          | SIZE        | 8.469 | NOZZLES   | 14 14 13       |
| COST        | 16085.00 | TRIP TIME   | 8.0   | BIT RUN   | 17.7           |
| TOTAL HOURS | 6.66     | TOTAL TURNS | 38355 | CONDITION | TO B0 G0.100   |

| DEPTH  | FLOW<br>RATE | PSP    | PBIT  | %PSP | HHP | HHP/<br>sqin | IMPACT<br>FORCE | JET<br>VELOCITY |
|--------|--------------|--------|-------|------|-----|--------------|-----------------|-----------------|
| 2810.0 | 273          | 1350.1 | 347.6 | 25.7 | 55  | 0.98         | 270             | 62              |
| 2820.0 | 257          | 1330.2 | 308.5 | 23.2 | 46  | 0.82         | 239             | 58              |
| 2824.0 | 256          | 1426.8 | 306.4 | 21.5 | 46  | 0.81         | 238             | 58              |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 13      | IADC CODE   | 537    | INTERVAL  | 2824.0- 2953.4 |
| HTC J33     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 6637.00 | TRIP TIME   | 8.3    | BIT RUN   | 129.4          |
| TOTAL HOURS | 28.13   | TOTAL TURNS | 90901  | CONDITION | T3 B4 G0.063   |

| DEPTH  | FLOW<br>RATE | PSP    | PBIT   | XPSP | HHP | HHP/<br>sqin | IMPACT<br>FORCE | JET<br>VELOCITY |
|--------|--------------|--------|--------|------|-----|--------------|-----------------|-----------------|
| 2830.0 | 730          | 2968.9 | 1330.9 | 44.8 | 567 | 4.81         | 1414            | 121             |
| 2840.0 | 725          | 2991.5 | 1325.0 | 44.3 | 560 | 4.75         | 1408            | 120             |
| 2850.0 | 540          | 1722.5 | 734.7  | 42.7 | 231 | 1.96         | 781             | 89              |
| 2860.0 | 525          | 1640.3 | 688.2  | 42.0 | 211 | 1.79         | 731             | 87              |
| 2870.0 | 720          | 2904.6 | 1294.5 | 44.6 | 544 | 4.62         | 1375            | 119             |
| 2880.0 | 712          | 2842.6 | 1250.1 | 44.0 | 519 | 4.40         | 1328            | 118             |
| 2890.0 | 715          | 2867.2 | 1260.4 | 44.0 | 525 | 4.46         | 1339            | 118             |
| 2900.0 | 720          | 2900.0 | 1264.9 | 43.6 | 531 | 4.51         | 1344            | 119             |
| 2910.0 | 719          | 2957.4 | 1260.7 | 42.6 | 528 | 4.48         | 1339            | 119             |
| 2920.0 | 720          | 2892.6 | 1265.7 | 43.8 | 532 | 4.51         | 1345            | 119             |
| 2930.0 | 727          | 2925.1 | 1291.0 | 44.1 | 548 | 4.65         | 1372            | 120             |
| 2940.0 | 718          | 2970.4 | 1258.1 | 42.4 | 527 | 4.47         | 1337            | 119             |
| 2950.0 | 717          | 2949.0 | 1255.7 | 42.6 | 525 | 4.46         | 1334            | 119             |
| 2953.4 | 721          | 2964.8 | 1270.3 | 42.8 | 535 | 4.54         | 1350            | 119             |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 14      | IADC CODE   | 537    | INTERVAL  | 2953.4- 3085.0 |
| HTC J33     |         | SIZE        | 12.250 | NOZZLES   | 16 16 18       |
| COST        | 6637.00 | TRIP TIME   | 8.5    | BIT RUN   | 131.6          |
| TOTAL HOURS | 34.10   | TOTAL TURNS | 111908 | CONDITION | T3 B4 G0.125   |

| DEPTH  | FLOW RATE | PSP    | PBIT   | %PSP | HHP | HHP/<br>sq in | IMPACT<br>FORCE | JET<br>VELOCITY |
|--------|-----------|--------|--------|------|-----|---------------|-----------------|-----------------|
| 2960.0 | 757       | 3187.7 | 1192.6 | 37.4 | 526 | 4.47          | 1379            | 115             |
| 2970.0 | 762       | 3128.0 | 1210.0 | 38.7 | 538 | 4.57          | 1399            | 116             |
| 2980.0 | 751       | 3016.8 | 1176.4 | 39.0 | 516 | 4.38          | 1361            | 114             |
| 2990.0 | 731       | 3029.5 | 1113.9 | 36.8 | 475 | 4.03          | 1288            | 111             |
| 3000.0 | 746       | 3120.9 | 1183.8 | 37.9 | 515 | 4.37          | 1369            | 113             |
| 3010.0 | 526       | 1688.8 | 589.1  | 34.9 | 181 | 1.53          | 681             | 80              |
| 3020.0 | 743       | 3100.9 | 1176.3 | 37.9 | 510 | 4.33          | 1360            | 113             |
| 3030.0 | 738       | 3068.1 | 1158.0 | 37.7 | 498 | 4.23          | 1339            | 112             |
| 3040.0 | 743       | 3083.1 | 1176.1 | 38.1 | 510 | 4.33          | 1360            | 113             |
| 3050.0 | 728       | 2989.3 | 1127.3 | 37.7 | 479 | 4.06          | 1304            | 111             |
| 3060.0 | 733       | 3029.7 | 1144.2 | 37.8 | 490 | 4.15          | 1323            | 112             |
| 3070.0 | 741       | 3112.2 | 1231.5 | 39.6 | 533 | 4.52          | 1424            | 113             |
| 3080.0 | 698       | 3034.3 | 1147.0 | 37.8 | 467 | 3.96          | 1327            | 106             |
| 3085.0 | 700       | 3120.0 | 1151.6 | 36.9 | 470 | 3.99          | 1332            | 106             |

COMPUTER DATA LISTING : LIST D

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INTERVAL . . . . . 10 m average

DEPTH . . . . . Well depth, in metres

SPM1 . . . . . Stroke rate per minute,  
for pump No 1

SPM2 . . . . . Stroke rate per minute,  
for pump No

FLOW RATE . . . . . Mud flow rate into the well,  
in gallons per minute

ANNULAR VELOCITIES : ( in metres per minute )

DC/OH - Between drill collars and the open hole

DC/CSG - Between drill collars and casing

HW/OH - Between heavyweight drill pipe and the open hole

HW/CSG - Between heavyweight drill pipe and casing

DP/OH - Between drill pipe and open hole

DP/CSG - Between drill pipe and casing

DP/RIS - Between drill pipe and riser



|                  |      |             |        |           |              |
|------------------|------|-------------|--------|-----------|--------------|
| BIT NUMBER       | 1    | IADC CODE   | 111    | INTERVAL  | 71.0- 208.0  |
| HTC OSC3AJ&26"HO |      | SIZE        | 26.000 | NOZZLES   | 20 20 20     |
| COST             | 0.00 | TRIP TIME   | 2.4    | BIT RUN   | 137.0        |
| TOTAL HOURS      | 2.04 | TOTAL TURNS | 15736  | CONDITION | T3 B4 G0.000 |

| DEPTH | SPM1 | SPM2 | FLOW RATE | DC/ OH | DC/ CSG | HW/ OH | HW/ CSG | DP/ OH | DP/ CSG | DP/ RIS |
|-------|------|------|-----------|--------|---------|--------|---------|--------|---------|---------|
| 80.0  | 96   | 79   | 862       | 11     |         | 10     |         |        |         |         |
| 90.0  | 109  | 96   | 1007      | 12     |         | 12     |         |        |         |         |
| 100.0 | 108  | 98   | 1012      | 12     |         | 12     |         |        |         |         |
| 110.0 | 108  | 98   | 1012      | 12     |         | 12     |         |        |         |         |
| 120.0 | 109  | 96   | 1006      | 12     |         | 12     |         |        |         |         |
| 130.0 | 109  | 99   | 1021      | 12     |         | 12     |         |        |         |         |
| 140.0 | 108  | 98   | 1011      | 12     |         | 12     |         |        |         |         |
| 150.0 | 106  | 98   | 1000      | 12     |         | 11     |         |        |         |         |
| 160.0 | 105  | 98   | 1000      | 12     |         | 11     |         | 11     |         |         |
| 170.0 | 108  | 99   | 1017      | 12     |         | 12     |         | 12     |         |         |
| 180.0 | 106  | 98   | 1006      | 12     |         | 12     |         | 12     |         |         |
| 190.0 | 106  | 98   | 1004      | 12     |         | 12     |         | 12     |         |         |
| 200.0 | 107  | 97   | 1004      | 12     |         | 12     |         | 12     |         |         |
| 208.0 | 108  | 101  | 1027      | 13     |         | 12     |         | 12     |         |         |

|             |         |             |        |           |               |
|-------------|---------|-------------|--------|-----------|---------------|
| BIT NUMBER  | 2       | IADC CODE   | 111    | INTERVAL  | 208.0-- 825.0 |
| HTC OSC 3AJ |         | SIZE        | 17.500 | NOZZLES   | 18 18 18      |
| COST        | 4442.00 | TRIP TIME   | 3.7    | BIT RUN   | 617.0         |
| TOTAL HOURS | 12.57   | TOTAL TURNS | 107714 | CONDITION | T2 B2 G0.000  |

| DEPTH | SPM1 | SPM2 | FLOW RATE | DC/ OH | DC/ CSG | HW/ OH | HW/ CSG | DP/ OH | DP/ CSG | DP/ RIS |
|-------|------|------|-----------|--------|---------|--------|---------|--------|---------|---------|
| 210.0 | 102  | 109  | 1037      |        | 26      |        | 23      |        |         | 19      |
| 220.0 | 96   | 108  | 1002      | 31     | 25      |        | 22      |        |         | 18      |
| 230.0 | 100  | 105  | 1007      | 31     | 25      |        | 22      |        |         | 18      |
| 240.0 | 101  | 95   | 961       | 30     | 24      |        | 21      |        |         | 17      |
| 250.0 | 120  | 1    | 593       | 18     | 15      |        | 13      |        |         | 11      |
| 260.0 | 121  | 1    | 599       | 18     | 15      |        | 13      |        |         | 11      |
| 270.0 | 120  | 0    | 590       | 18     | 15      |        | 13      |        | 13      | 11      |
| 280.0 | 119  | 0    | 584       | 18     | 14      |        | 13      |        | 13      | 10      |
| 290.0 | 120  | 0    | 590       | 18     | 15      |        | 13      |        | 13      | 11      |
| 300.0 | 120  | 0    | 590       | 18     | 15      |        | 13      |        | 13      | 11      |
| 310.0 | 120  | 0    | 588       | 18     | 15      |        | 13      |        | 13      | 11      |
| 320.0 | 120  | 0    | 591       | 18     |         | 16     | 13      |        | 13      | 11      |
| 330.0 | 121  | 0    | 596       | 18     |         | 16     | 13      |        | 13      | 11      |
| 340.0 | 120  | 0    | 591       | 18     |         | 16     | 13      |        | 13      | 11      |
| 350.0 | 120  | 0    | 590       | 18     |         | 16     | 13      |        | 13      | 11      |
| 360.0 | 122  | 0    | 601       | 19     |         | 16     | 13      |        | 13      | 11      |
| 370.0 | 120  | 0    | 587       | 18     |         | 16     | 13      |        | 13      | 11      |
| 380.0 | 121  | 0    | 592       | 18     |         | 16     | 13      |        | 13      | 11      |
| 390.0 | 103  | 109  | 1041      | 32     |         | 28     | 23      |        | 23      | 19      |
| 400.0 | 100  | 108  | 1024      | 32     |         | 27     |         | 27     | 22      | 18      |
| 410.0 | 100  | 107  | 1015      | 31     |         | 27     |         | 27     | 22      | 18      |
| 420.0 | 101  | 108  | 1028      | 32     |         | 27     |         | 27     | 23      | 18      |
| 430.0 | 101  | 108  | 1029      | 32     |         | 27     |         | 27     | 23      | 18      |
| 440.0 | 102  | 98   | 981       | 30     |         | 26     |         | 26     | 22      | 18      |
| 450.0 | 101  | 108  | 1031      | 32     |         | 27     |         | 27     | 23      | 19      |
| 460.0 | 101  | 109  | 1030      | 32     |         | 27     |         | 27     | 23      | 19      |
| 470.0 | 102  | 109  | 1037      | 32     |         | 28     |         | 28     | 23      | 19      |
| 480.0 | 103  | 108  | 1038      | 32     |         | 28     |         | 28     | 23      | 19      |
| 490.0 | 101  | 109  | 1032      | 32     |         | 27     |         | 27     | 23      | 19      |
| 500.0 | 102  | 109  | 1040      | 32     |         | 28     |         | 28     | 23      | 19      |
| 510.0 | 102  | 109  | 1036      | 32     |         | 28     |         | 28     | 23      | 19      |
| 520.0 | 102  | 108  | 1033      | 32     |         | 27     |         | 27     | 23      | 19      |
| 530.0 | 102  | 108  | 1033      | 32     |         | 27     |         | 27     | 23      | 19      |
| 540.0 | 102  | 109  | 1039      | 32     |         | 28     |         | 28     | 23      | 19      |
| 550.0 | 102  | 110  | 1043      | 32     |         | 28     |         | 28     | 23      | 19      |
| 560.0 | 102  | 109  | 1034      | 32     |         | 27     |         | 27     | 23      | 19      |
| 570.0 | 102  | 109  | 1039      | 32     |         | 28     |         | 28     | 23      | 19      |
| 580.0 | 100  | 111  | 1038      | 32     |         | 28     |         | 28     | 23      | 19      |
| 590.0 | 100  | 110  | 1032      | 32     |         | 27     |         | 27     | 23      | 19      |
| 600.0 | 100  | 110  | 1032      | 32     |         | 27     |         | 27     | 23      | 19      |
| 610.0 | 101  | 110  | 1037      | 32     |         | 28     |         | 28     | 23      | 19      |
| 620.0 | 100  | 110  | 1031      | 32     |         | 27     |         | 27     | 23      | 19      |
| 630.0 | 103  | 105  | 1020      | 31     |         | 27     |         | 27     | 22      | 18      |

| DEPTH | SPM1 | SPM2 | FLOW<br>RATE | DC/<br>OH | DC/<br>CSG | HW/<br>OH | HW/<br>CSG | DP/<br>OH | DP/<br>CSG | DP/<br>RIS |
|-------|------|------|--------------|-----------|------------|-----------|------------|-----------|------------|------------|
| 640.0 | 102  | 106  | 1023         | 32        |            | 27        |            | 27        | 22         | 18         |
| 650.0 | 101  | 107  | 1020         | 31        |            | 27        |            | 27        | 22         | 18         |
| 660.0 | 101  | 107  | 1024         | 32        |            | 27        |            | 27        | 22         | 18         |
| 670.0 | 101  | 107  | 1024         | 32        |            | 27        |            | 27        | 22         | 18         |
| 680.0 | 102  | 109  | 1040         | 32        |            | 28        |            | 28        | 23         | 19         |
| 690.0 | 100  | 105  | 1009         | 31        |            | 27        |            | 27        | 22         | 18         |
| 700.0 | 99   | 107  | 1013         | 31        |            | 27        |            | 27        | 22         | 18         |
| 710.0 | 100  | 105  | 1009         | 31        |            | 27        |            | 27        | 22         | 18         |
| 720.0 | 99   | 101  | 987          | 30        |            | 26        |            | 26        | 22         | 18         |
| 730.0 | 100  | 102  | 989          | 31        |            | 26        |            | 26        | 22         | 18         |
| 740.0 | 99   | 102  | 989          | 31        |            | 26        |            | 26        | 22         | 18         |
| 750.0 | 100  | 102  | 992          | 31        |            | 26        |            | 26        | 22         | 18         |
| 760.0 | 99   | 102  | 985          | 30        |            | 26        |            | 26        | 22         | 18         |
| 770.0 | 98   | 100  | 973          | 30        |            | 26        |            | 26        | 21         | 17         |
| 780.0 | 99   | 100  | 980          | 30        |            | 26        |            | 26        | 21         | 18         |
| 790.0 | 99   | 101  | 983          | 30        |            | 26        |            | 26        | 22         | 18         |
| 800.0 | 99   | 102  | 985          | 30        |            | 26        |            | 26        | 22         | 18         |
| 810.0 | 99   | 100  | 979          | 30        |            | 26        |            | 26        | 21         | 18         |
| 820.0 | 99   | 101  | 980          | 30        |            | 26        |            | 26        | 21         | 18         |
| 825.0 | 99   | 101  | 983          | 30        |            | 26        |            | 26        | 22         | 18         |

|             |         |             |        |           |               |
|-------------|---------|-------------|--------|-----------|---------------|
| BIT NUMBER  | 3       | IADC CODE   | 114    | INTERVAL  | 825.0- 1271.0 |
| HTC X3A     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16      |
| COST        | 2201.00 | TRIP TIME   | 4.7    | BIT RUN   | 446.0         |
| TOTAL HOURS | 18.77   | TOTAL TURNS | 166290 | CONDITION | T6 B8 G0.063  |

| DEPTH  | SPM1 | SPM2 | FLOW RATE | DC/ OH | DC/ CSG | HW/ OH | HW/ CSG | DP/ OH | DP/ CSG | DP/ RIS |
|--------|------|------|-----------|--------|---------|--------|---------|--------|---------|---------|
| 830.0  | 121  | 0    | 594       | 52     | 47      |        | 33      |        | 33      | 11      |
| 840.0  | 120  | 0    | 590       | 51     | 46      |        | 33      |        | 33      | 11      |
| 850.0  | 120  | 0    | 592       | 51     | 46      |        | 33      |        | 33      | 11      |
| 860.0  | 85   | 88   | 852       | 74     | 67      |        | 47      |        | 47      | 15      |
| 870.0  | 85   | 87   | 845       | 73     | 66      |        | 47      |        | 47      | 15      |
| 880.0  | 85   | 87   | 847       | 74     | 67      |        | 47      |        | 47      | 15      |
| 890.0  | 85   | 88   | 849       | 74     | 67      |        | 47      |        | 47      | 15      |
| 900.0  | 85   | 87   | 846       | 73     | 66      |        | 47      |        | 47      | 15      |
| 910.0  | 85   | 88   | 851       | 74     | 67      |        | 47      |        | 47      | 15      |
| 920.0  | 86   | 87   | 847       | 74     | 67      |        | 47      |        | 47      | 15      |
| 930.0  | 85   | 84   | 830       | 72     | 65      |        | 46      |        | 46      | 15      |
| 940.0  | 85   | 84   | 831       | 72     | 65      |        | 46      |        | 46      | 15      |
| 950.0  | 84   | 86   | 835       | 73     | 66      |        | 47      |        | 47      | 15      |
| 960.0  | 88   | 86   | 854       | 74     |         | 51     | 48      |        | 48      | 15      |
| 970.0  | 86   | 85   | 839       | 73     |         | 50     | 47      |        | 47      | 15      |
| 980.0  | 87   | 85   | 841       | 73     |         | 50     | 47      |        | 47      | 15      |
| 990.0  | 84   | 85   | 831       | 72     |         | 50     | 46      |        | 46      | 15      |
| 1000.0 | 86   | 87   | 847       | 74     |         | 51     | 47      |        | 47      | 15      |
| 1010.0 | 85   | 87   | 844       | 73     |         | 50     | 47      |        | 47      | 15      |
| 1020.0 | 87   | 85   | 846       | 73     |         | 51     | 47      |        | 47      | 15      |
| 1030.0 | 86   | 85   | 843       | 73     |         | 50     | 47      |        | 47      | 15      |
| 1040.0 | 87   | 86   | 846       | 73     |         | 51     |         | 51     | 47      | 15      |
| 1050.0 | 87   | 86   | 850       | 74     |         | 51     |         | 51     | 47      | 15      |
| 1060.0 | 87   | 85   | 843       | 73     |         | 50     |         | 50     | 47      | 15      |
| 1070.0 | 86   | 85   | 838       | 73     |         | 50     |         | 50     | 47      | 15      |
| 1080.0 | 87   | 84   | 844       | 73     |         | 50     |         | 50     | 47      | 15      |
| 1090.0 | 87   | 85   | 844       | 73     |         | 50     |         | 50     | 47      | 15      |
| 1100.0 | 85   | 84   | 828       | 72     |         | 50     |         | 50     | 46      | 15      |
| 1110.0 | 85   | 84   | 830       | 72     |         | 50     |         | 50     | 46      | 15      |
| 1120.0 | 85   | 84   | 830       | 72     |         | 50     |         | 50     | 46      | 15      |
| 1130.0 | 85   | 84   | 830       | 72     |         | 50     |         | 50     | 46      | 15      |
| 1140.0 | 85   | 84   | 830       | 72     |         | 50     |         | 50     | 46      | 15      |
| 1150.0 | 86   | 84   | 832       | 72     |         | 50     |         | 50     | 46      | 15      |
| 1160.0 | 84   | 84   | 826       | 72     |         | 49     |         | 49     | 46      | 15      |
| 1170.0 | 85   | 84   | 833       | 72     |         | 50     |         | 50     | 46      | 15      |
| 1180.0 | 84   | 84   | 828       | 72     |         | 49     |         | 49     | 46      | 15      |
| 1190.0 | 84   | 82   | 816       | 71     |         | 49     |         | 49     | 45      | 15      |
| 1200.0 | 85   | 84   | 830       | 72     |         | 50     |         | 50     | 46      | 15      |
| 1210.0 | 84   | 83   | 817       | 71     |         | 49     |         | 49     | 46      | 15      |
| 1220.0 | 84   | 81   | 809       | 70     |         | 48     |         | 48     | 45      | 15      |
| 1230.0 | 79   | 83   | 797       | 69     |         | 48     |         | 48     | 44      | 14      |
| 1240.0 | 81   | 82   | 799       | 69     |         | 48     |         | 48     | 45      | 14      |
| 1250.0 | 80   | 81   | 794       | 69     |         | 47     |         | 47     | 44      | 14      |

| DEPTH  | SPM1 | SPM2 | FLOW<br>RATE | DC/<br>OH | DC/<br>CSG | HW/<br>OH | HW/<br>CSG | DP/<br>OH | DP/<br>CSG | DP/<br>RIS |
|--------|------|------|--------------|-----------|------------|-----------|------------|-----------|------------|------------|
| 1260.0 | 80   | 81   | 791          | 69        |            | 47        |            | 47        | 44         | 14         |
| 1270.0 | 80   | 82   | 796          | 69        |            | 48        |            | 48        | 44         | 14         |
| 1271.0 | 81   | 81   | 792          | 69        |            | 47        |            | 47        | 44         | 14         |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 4       | IADC CODE   | 114    | INTERVAL  | 1271.0- 1624.0 |
| HTC X3A     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 2201.00 | TRIP TIME   | 5.4    | BIT RUN   | 353.0          |
| TOTAL HOURS | 15.10   | TOTAL TURNS | 122032 | CONDITION | T8 R8 G1.500   |

| DEPTH  | SPM1 | SPM2 | FLOW RATE | DC/ OH | DC/ CSG | HW/ OH | HW/ CSG | DP/ OH | DP/ CSG | DP/ RIS |
|--------|------|------|-----------|--------|---------|--------|---------|--------|---------|---------|
| 1280.0 | 121  | 0    | 596       | 52     |         | 36     |         | 36     | 33      | 11      |
| 1290.0 | 121  | 0    | 593       | 51     |         | 35     |         | 35     | 33      | 11      |
| 1300.0 | 122  | 0    | 600       | 52     |         | 36     |         | 36     | 33      | 11      |
| 1310.0 | 80   | 67   | 720       | 63     |         | 43     |         | 43     | 40      | 13      |
| 1320.0 | 118  | 0    | 578       | 50     |         | 35     |         | 35     | 32      | 10      |
| 1330.0 | 71   | 75   | 717       | 62     |         | 43     |         | 43     | 40      | 13      |
| 1340.0 | 71   | 80   | 740       | 64     |         | 44     |         | 44     | 41      | 13      |
| 1350.0 | 70   | 80   | 741       | 64     |         | 44     |         | 44     | 41      | 13      |
| 1360.0 | 73   | 81   | 757       | 66     |         | 45     |         | 45     | 42      | 14      |
| 1370.0 | 71   | 81   | 748       | 65     |         | 45     |         | 45     | 42      | 13      |
| 1380.0 | 72   | 81   | 753       | 65     |         | 45     |         | 45     | 42      | 14      |
| 1390.0 | 74   | 80   | 753       | 65     |         | 45     |         | 45     | 42      | 14      |
| 1400.0 | 73   | 80   | 749       | 65     |         | 45     |         | 45     | 42      | 13      |
| 1410.0 | 75   | 80   | 758       | 66     |         | 45     |         | 45     | 42      | 14      |
| 1420.0 | 72   | 81   | 749       | 65     |         | 45     |         | 45     | 42      | 13      |
| 1430.0 | 74   | 79   | 756       | 66     |         | 45     |         | 45     | 42      | 14      |
| 1440.0 | 72   | 79   | 742       | 64     |         | 44     |         | 44     | 41      | 13      |
| 1450.0 | 74   | 79   | 751       | 65     |         | 45     |         | 45     | 42      | 13      |
| 1460.0 | 74   | 80   | 754       | 65     |         | 45     |         | 45     | 42      | 14      |
| 1470.0 | 74   | 80   | 755       | 66     |         | 45     |         | 45     | 42      | 14      |
| 1480.0 | 74   | 80   | 756       | 66     |         | 45     |         | 45     | 42      | 14      |
| 1490.0 | 74   | 80   | 760       | 66     |         | 45     |         | 45     | 42      | 14      |
| 1500.0 | 74   | 80   | 757       | 66     |         | 45     |         | 45     | 42      | 14      |
| 1510.0 | 79   | 49   | 625       | 54     |         | 37     |         | 37     | 35      | 11      |
| 1520.0 | 75   | 80   | 761       | 66     |         | 46     |         | 46     | 42      | 14      |
| 1530.0 | 74   | 80   | 755       | 66     |         | 45     |         | 45     | 42      | 14      |
| 1540.0 | 74   | 79   | 754       | 65     |         | 45     |         | 45     | 42      | 14      |
| 1550.0 | 75   | 77   | 746       | 65     |         | 45     |         | 45     | 42      | 13      |
| 1560.0 | 83   | 86   | 828       | 72     |         | 49     |         | 49     | 46      | 15      |
| 1570.0 | 83   | 77   | 787       | 68     |         | 47     |         | 47     | 44      | 14      |
| 1580.0 | 84   | 77   | 790       | 69     |         | 47     |         | 47     | 44      | 14      |
| 1590.0 | 83   | 74   | 772       | 67     |         | 46     |         | 46     | 43      | 14      |
| 1600.0 | 83   | 72   | 762       | 66     |         | 46     |         | 46     | 42      | 14      |
| 1610.0 | 81   | 82   | 799       | 69     |         | 48     |         | 48     | 44      | 14      |
| 1620.0 | 79   | 82   | 791       | 69     |         | 47     |         | 47     | 44      | 14      |
| 1624.0 | 82   | 80   | 795       | 69     |         | 48     |         | 48     | 44      | 14      |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 5       | IADC CODE   | 517    | INTERVAL  | 1624.0- 1626.0 |
| HTC J22     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 6788.00 | TRIP TIME   | 5.4    | BIT RUN   | 2.0            |
| TOTAL HOURS | 1.66    | TOTAL TURNS | 6146   | CONDITION | T8 B2 G0.125   |

| DEPTH  | SPM1 | SPM2 | FLOW<br>RATE | DC/<br>OH | DC/<br>CSG | HW/<br>OH | HW/<br>CSG | DP/<br>OH | DP/<br>CSG | DP/<br>RIS |
|--------|------|------|--------------|-----------|------------|-----------|------------|-----------|------------|------------|
| 1626.0 | 87   | 79   | 818          | 71        |            | 49        |            | 49        | 46         | 15         |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 6       | IADC CODE   | 316    | INTERVAL  | 1626.0- 1663.0 |
| HTC J7      |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 1761.00 | TRIP TIME   | 5.5    | BIT RUN   | 37.0           |
| TOTAL HOURS | 3.99    | TOTAL TURNS | 26591  | CONDITION | T5 B2 G0.375   |

| DEPTH  | SPM1 | SPM2 | FLOW<br>RATE | DC/<br>OH | DC/<br>CSG | HW/<br>OH | HW/<br>CSG | DP/<br>OH | DP/<br>CSG | DP/<br>RIS |
|--------|------|------|--------------|-----------|------------|-----------|------------|-----------|------------|------------|
| 1630.0 | 79   | 79   | 780          | 68        |            | 47        |            | 47        | 43         | 14         |
| 1640.0 | 83   | 76   | 780          | 68        |            | 47        |            | 47        | 43         | 14         |
| 1650.0 | 83   | 76   | 785          | 68        |            | 47        |            | 47        | 44         | 14         |
| 1660.0 | 84   | 76   | 785          | 68        |            | 47        |            | 47        | 44         | 14         |
| 1663.0 | 84   | 77   | 790          | 69        |            | 47        |            | 47        | 44         | 14         |



|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 7       | IADC CODE   | 517    | INTERVAL  | 1663.0- 2058.0 |
| HTC J22     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 6788.00 | TRIP TIME   | 6.4    | BIT RUN   | 395.0          |
| TOTAL HOURS | 46.42   | TOTAL TURNS | 174195 | CONDITION | T4 B3 G0.125   |

| DEPTH  | SPM1 | SPM2 | FLOW RATE | DC/ OH | DC/ CSG | HW/ OH | HW/ CSG | DP/ OH | DP/ CSG | DP/ RIS |
|--------|------|------|-----------|--------|---------|--------|---------|--------|---------|---------|
| 1670.0 | 83   | 85   | 827       | 72     |         | 49     |         | 49     | 46      | 15      |
| 1680.0 | 79   | 83   | 798       | 69     |         | 48     |         | 48     | 44      | 14      |
| 1690.0 | 75   | 80   | 764       | 66     |         | 46     |         | 46     | 43      | 14      |
| 1700.0 | 77   | 79   | 767       | 67     |         | 46     |         | 46     | 43      | 14      |
| 1710.0 | 76   | 80   | 767       | 67     |         | 46     |         | 46     | 43      | 14      |
| 1720.0 | 76   | 79   | 764       | 66     |         | 46     |         | 46     | 43      | 14      |
| 1730.0 | 77   | 77   | 758       | 66     |         | 45     |         | 45     | 42      | 14      |
| 1740.0 | 76   | 80   | 768       | 67     |         | 46     |         | 46     | 43      | 14      |
| 1750.0 | 77   | 79   | 767       | 67     |         | 46     |         | 46     | 43      | 14      |
| 1760.0 | 76   | 79   | 760       | 66     |         | 45     |         | 45     | 42      | 14      |
| 1770.0 | 79   | 84   | 802       | 70     |         | 48     |         | 48     | 45      | 14      |
| 1780.0 | 77   | 79   | 765       | 66     |         | 46     |         | 46     | 43      | 14      |
| 1790.0 | 76   | 80   | 767       | 67     |         | 46     |         | 46     | 43      | 14      |
| 1800.0 | 76   | 79   | 757       | 66     |         | 45     |         | 45     | 42      | 14      |
| 1810.0 | 76   | 79   | 759       | 66     |         | 45     |         | 45     | 42      | 14      |
| 1820.0 | 76   | 79   | 763       | 66     |         | 46     |         | 46     | 43      | 14      |
| 1830.0 | 76   | 80   | 766       | 67     |         | 46     |         | 46     | 43      | 14      |
| 1840.0 | 76   | 80   | 768       | 67     |         | 46     |         | 46     | 43      | 14      |
| 1850.0 | 77   | 79   | 769       | 67     |         | 46     |         | 46     | 43      | 14      |
| 1860.0 | 76   | 81   | 772       | 67     |         | 46     |         | 46     | 43      | 14      |
| 1870.0 | 74   | 80   | 756       | 66     |         | 45     |         | 45     | 42      | 14      |
| 1880.0 | 75   | 78   | 752       | 65     |         | 45     |         | 45     | 42      | 14      |
| 1890.0 | 75   | 80   | 760       | 66     |         | 45     |         | 45     | 42      | 14      |
| 1900.0 | 74   | 78   | 749       | 65     |         | 45     |         | 45     | 42      | 13      |
| 1910.0 | 72   | 79   | 743       | 65     |         | 44     |         | 44     | 41      | 13      |
| 1920.0 | 72   | 80   | 744       | 65     |         | 44     |         | 44     | 41      | 13      |
| 1930.0 | 76   | 78   | 755       | 66     |         | 45     |         | 45     | 42      | 14      |
| 1940.0 | 0    | 123  | 605       | 53     |         | 36     |         | 36     | 34      | 11      |
| 1950.0 | 0    | 121  | 596       | 52     |         | 36     |         | 36     | 33      | 11      |
| 1960.0 | 74   | 78   | 746       | 65     |         | 45     |         | 45     | 42      | 13      |
| 1970.0 | 76   | 79   | 760       | 66     |         | 45     |         | 45     | 42      | 14      |
| 1980.0 | 77   | 77   | 757       | 66     |         | 45     |         | 45     | 42      | 14      |
| 1990.0 | 76   | 78   | 758       | 66     |         | 45     |         | 45     | 42      | 14      |
| 2000.0 | 75   | 78   | 752       | 65     |         | 45     |         | 45     | 42      | 14      |
| 2010.0 | 75   | 76   | 741       | 64     |         | 44     |         | 44     | 41      | 13      |
| 2020.0 | 75   | 76   | 744       | 65     |         | 44     |         | 44     | 41      | 13      |
| 2030.0 | 76   | 76   | 747       | 65     |         | 45     |         | 45     | 42      | 13      |
| 2040.0 | 71   | 75   | 720       | 63     |         | 43     |         | 43     | 40      | 13      |
| 2050.0 | 74   | 77   | 742       | 64     |         | 44     |         | 44     | 41      | 13      |
| 2058.0 | 74   | 77   | 742       | 64     |         | 44     |         | 44     | 41      | 13      |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 8       | IADC CODE   | 517    | INTERVAL  | 2058.0- 2253.0 |
| HTC J22     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 6788.00 | TRIP TIME   | 6.8    | BIT RUN   | 195.0          |
| TOTAL HOURS | 26.10   | TOTAL TURNS | 89647  | CONDITION | T2 B2 G0.000   |

| DEPTH  | SPM1 | SPM2 | FLOW<br>RATE | DC/<br>OH | DC/<br>CSG | HW/<br>OH | HW/<br>CSG | DP/<br>OH | DP/<br>CSG | DP/<br>RIS |
|--------|------|------|--------------|-----------|------------|-----------|------------|-----------|------------|------------|
| 2060.0 | 75   | 71   | 716          | 62        |            | 43        |            | 43        | 40         | 13         |
| 2070.0 | 76   | 76   | 743          | 65        |            | 44        |            | 44        | 41         | 13         |
| 2080.0 | 75   | 74   | 733          | 64        |            | 44        |            | 44        | 41         | 13         |
| 2090.0 | 74   | 73   | 726          | 63        |            | 43        |            | 43        | 40         | 13         |
| 2100.0 | 74   | 75   | 735          | 64        |            | 44        |            | 44        | 41         | 13         |
| 2110.0 | 76   | 74   | 737          | 64        |            | 44        |            | 44        | 41         | 13         |
| 2120.0 | 76   | 73   | 731          | 63        |            | 44        |            | 44        | 41         | 13         |
| 2130.0 | 75   | 74   | 733          | 64        |            | 44        |            | 44        | 41         | 13         |
| 2140.0 | 75   | 74   | 732          | 64        |            | 44        |            | 44        | 41         | 13         |
| 2150.0 | 75   | 74   | 733          | 64        |            | 44        |            | 44        | 41         | 13         |
| 2160.0 | 76   | 74   | 734          | 64        |            | 44        |            | 44        | 41         | 13         |
| 2170.0 | 76   | 75   | 738          | 64        |            | 44        |            | 44        | 41         | 13         |
| 2180.0 | 76   | 74   | 735          | 64        |            | 44        |            | 44        | 41         | 13         |
| 2190.0 | 76   | 74   | 735          | 64        |            | 44        |            | 44        | 41         | 13         |
| 2200.0 | 75   | 75   | 738          | 64        |            | 44        |            | 44        | 41         | 13         |
| 2210.0 | 75   | 73   | 728          | 63        |            | 44        |            | 44        | 41         | 13         |
| 2220.0 | 76   | 73   | 730          | 63        |            | 44        |            | 44        | 41         | 13         |
| 2230.0 | 76   | 71   | 721          | 63        |            | 43        |            | 43        | 40         | 13         |
| 2240.0 | 75   | 74   | 732          | 64        |            | 44        |            | 44        | 41         | 13         |
| 2250.0 | 16   | 91   | 526          | 46        |            | 31        |            | 31        | 29         | 9          |
| 2253.0 | 51   | 46   | 474          | 41        |            | 28        |            | 28        | 26         | 9          |

|             |      |             |       |           |                |
|-------------|------|-------------|-------|-----------|----------------|
| BIT NUMBER  | 8    | IADC CODE   | 4     | INTERVAL  | 2253.0- 2265.1 |
| CHRIS RC3   |      | SIZE        | 8.500 | NOZZLES   | 15 15 14       |
| COST        | 0.00 | TRIP TIME   | 6.8   | BIT RUN   | 12.1           |
| TOTAL HOURS | 2.42 | TOTAL TURNS | 10122 | CONDITION | TO B0 G0.700   |

| DEPTH  | SPM1 | SPM2 | FLOW<br>RATE | DC/<br>OH | DC/<br>CSG | HW/<br>OH | HW/<br>CSG | DP/<br>OH | DP/<br>CSG | DP/<br>RIS |
|--------|------|------|--------------|-----------|------------|-----------|------------|-----------|------------|------------|
| 2260.0 | 63   | 0    | 308          | 279       |            | 49        |            | 49        | 17         | 6          |
| 2265.1 | 63   | 0    | 310          | 280       |            | 49        |            | 49        | 17         | 6          |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 9       | IADC CODE   | 517    | INTERVAL  | 2265.1- 2450.0 |
| HTC J22     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 6788.00 | TRIP TIME   | 7.2    | BIT RUN   | 184.9          |
| TOTAL HOURS | 38.89   | TOTAL TURNS | 125062 | CONDITION | T3 B4 G0.125   |

| DEPTH  | SPM1 | SPM2 | FLOW<br>RATE | DC/<br>OH | DC/<br>CSG | HW/<br>OH | HW/<br>CSG | DP/<br>OH | DP/<br>CSG | DP/<br>RIS |
|--------|------|------|--------------|-----------|------------|-----------|------------|-----------|------------|------------|
| 2270.0 | 72   | 73   | 712          | 62        |            | 43        |            | 43        | 40         | 13         |
| 2280.0 | 72   | 72   | 710          | 62        |            | 42        |            | 42        | 40         | 13         |
| 2290.0 | 72   | 74   | 720          | 63        |            | 43        |            | 43        | 40         | 13         |
| 2300.0 | 72   | 71   | 702          | 61        |            | 42        |            | 42        | 39         | 13         |
| 2310.0 | 70   | 72   | 698          | 61        |            | 42        |            | 42        | 39         | 13         |
| 2320.0 | 70   | 71   | 693          | 60        |            | 41        |            | 41        | 39         | 12         |
| 2330.0 | 72   | 72   | 709          | 62        |            | 42        |            | 42        | 39         | 13         |
| 2340.0 | 72   | 69   | 693          | 60        |            | 41        |            | 41        | 39         | 12         |
| 2350.0 | 72   | 72   | 711          | 62        |            | 43        |            | 43        | 40         | 13         |
| 2360.0 | 73   | 74   | 720          | 62        |            | 43        |            | 43        | 40         | 13         |
| 2370.0 | 72   | 73   | 712          | 62        |            | 43        |            | 43        | 40         | 13         |
| 2380.0 | 71   | 72   | 706          | 61        |            | 42        |            | 42        | 39         | 13         |
| 2390.0 | 72   | 73   | 712          | 62        |            | 43        |            | 43        | 40         | 13         |
| 2400.0 | 71   | 73   | 704          | 61        |            | 42        |            | 42        | 39         | 13         |
| 2410.0 | 47   | 78   | 614          | 53        |            | 37        |            | 37        | 34         | 11         |
| 2420.0 | 70   | 71   | 694          | 60        |            | 41        |            | 41        | 39         | 12         |
| 2430.0 | 103  | 5    | 529          | 46        |            | 32        |            | 32        | 29         | 10         |
| 2440.0 | 72   | 73   | 713          | 62        |            | 43        |            | 43        | 40         | 13         |
| 2450.0 | 71   | 73   | 707          | 61        |            | 42        |            | 42        | 39         | 13         |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 10      | IADC CODE   | 517    | INTERVAL  | 2450.0- 2678.0 |
| HTC J22     |         | SIZE        | 12.250 | NOZZLES   | 15 15 16       |
| COST        | 6788.00 | TRIP TIME   | 7.3    | BIT RUN   | 228.0          |
| TOTAL HOURS | 50.23   | TOTAL TURNS | 192705 | CONDITION | T6 B4 G0.250   |

| DEPTH  | SPM1 | SPM2 | FLOW<br>RATE | DC/<br>OH | DC/<br>CSG | HW/<br>OH | HW/<br>CSG | DP/<br>OH | DP/<br>CSG | DP/<br>RIS |
|--------|------|------|--------------|-----------|------------|-----------|------------|-----------|------------|------------|
| 2460.0 | 68   | 67   | 663          | 58        |            | 40        |            | 40        | 37         | 12         |
| 2470.0 | 68   | 67   | 665          | 58        |            | 40        |            | 40        | 37         | 12         |
| 2480.0 | 68   | 66   | 659          | 57        |            | 39        |            | 39        | 37         | 12         |
| 2490.0 | 68   | 69   | 669          | 58        |            | 40        |            | 40        | 37         | 12         |
| 2500.0 | 69   | 70   | 681          | 59        |            | 41        |            | 41        | 38         | 12         |
| 2510.0 | 69   | 70   | 680          | 59        |            | 41        |            | 41        | 38         | 12         |
| 2520.0 | 68   | 68   | 672          | 58        |            | 40        |            | 40        | 37         | 12         |
| 2530.0 | 69   | 70   | 684          | 59        |            | 41        |            | 41        | 38         | 12         |
| 2540.0 | 69   | 70   | 681          | 59        |            | 41        |            | 41        | 38         | 12         |
| 2550.0 | 72   | 76   | 723          | 63        |            | 43        |            | 43        | 40         | 13         |
| 2560.0 | 69   | 69   | 676          | 59        |            | 40        |            | 40        | 38         | 12         |
| 2570.0 | 71   | 72   | 703          | 61        |            | 42        |            | 42        | 39         | 13         |
| 2580.0 | 71   | 74   | 710          | 62        |            | 42        |            | 42        | 40         | 13         |
| 2590.0 | 73   | 72   | 712          | 62        |            | 43        |            | 43        | 40         | 13         |
| 2600.0 | 74   | 73   | 719          | 62        |            | 43        |            | 43        | 40         | 13         |
| 2610.0 | 102  | 58   | 787          | 68        |            | 47        |            | 47        | 44         | 14         |
| 2620.0 | 95   | 0    | 468          | 41        |            | 28        |            | 28        | 26         | 8          |
| 2630.0 | 102  | 0    | 501          | 44        |            | 30        |            | 30        | 28         | 9          |
| 2640.0 | 94   | 69   | 800          | 70        |            | 48        |            | 48        | 45         | 14         |
| 2650.0 | 105  | 62   | 819          | 71        |            | 49        |            | 49        | 46         | 15         |
| 2660.0 | 117  | 0    | 576          | 50        |            | 34        |            | 34        | 32         | 10         |
| 2670.0 | 116  | 65   | 888          | 77        |            | 53        |            | 53        | 49         | 16         |
| 2678.0 | 121  | 66   | 917          | 80        |            | 55        |            | 55        | 51         | 16         |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 11      | IADC CODE   | 537    | INTERVAL  | 2678.0- 2683.5 |
| HTC J33     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 6637.00 | TRIP TIME   | 7.5    | BIT RUN   | 5.5            |
| TOTAL HOURS | 0.97    | TOTAL TURNS | 2075   | CONDITION | T1 B1 G0.000   |

| DEPTH  | SPM1 | SPM2 | FLOW<br>RATE | DC/<br>OH | DC/<br>CSG | HW/<br>OH | HW/<br>CSG | DP/<br>OH | DP/<br>CSG | DP/<br>RIS |
|--------|------|------|--------------|-----------|------------|-----------|------------|-----------|------------|------------|
| 2680.0 | 94   | 91   | 910          | 79        |            | 54        |            | 54        | 51         | 16         |
| 2683.5 | 95   | 93   | 923          | 80        |            | 55        |            | 55        | 51         | 17         |

|             |       |             |        |           |                |
|-------------|-------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 11    | IADC CODE   | 537    | INTERVAL  | 2683.5- 2767.7 |
| HTC J33     |       | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 0.00  | TRIP TIME   | 7.7    | BIT RUN   | 84.2           |
| TOTAL HOURS | 28.25 | TOTAL TURNS | 96616  | CONDITION | T8 B4 G0.250   |

| DEPTH  | SPM1 | SPM2 | FLOW<br>RATE | DC/<br>OH | DC/<br>CSG | HW/<br>OH | HW/<br>CSG | DP/<br>OH | DP/<br>CSG | DP/<br>RIS |
|--------|------|------|--------------|-----------|------------|-----------|------------|-----------|------------|------------|
| 2690.0 | 76   | 74   | 735          | 64        |            | 44        |            | 44        | 41         | 13         |
| 2700.0 | 75   | 76   | 741          | 64        |            | 44        |            | 44        | 41         | 13         |
| 2710.0 | 75   | 76   | 743          | 65        |            | 44        |            | 44        | 41         | 13         |
| 2720.0 | 74   | 74   | 727          | 63        |            | 43        |            | 43        | 41         | 13         |
| 2730.0 | 76   | 75   | 742          | 64        |            | 44        |            | 44        | 41         | 13         |
| 2740.0 | 74   | 77   | 742          | 64        |            | 44        |            | 44        | 41         | 13         |
| 2750.0 | 75   | 75   | 738          | 64        |            | 44        |            | 44        | 41         | 13         |
| 2760.0 | 75   | 76   | 742          | 64        |            | 44        |            | 44        | 41         | 13         |
| 2767.7 | 76   | 76   | 747          | 65        |            | 45        |            | 45        | 42         | 13         |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 12      | IADC CODE   | 617    | INTERVAL  | 2767.7- 2806.3 |
| HTC J44     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 4919.00 | TRIP TIME   | 7.8    | BIT RUN   | 38.6           |
| TOTAL HOURS | 6.93    | TOTAL TURNS | 18538  | CONDITION | T1 R1 G0.000   |

| DEPTH  | SPM1 | SPM2 | FLOW RATE | DC/ OH | DC/ CSG | HW/ OH | HW/ CSG | DP/ OH | DP/ CSG | DP/ RIS |
|--------|------|------|-----------|--------|---------|--------|---------|--------|---------|---------|
| 2770.0 | 79   | 71   | 750       | 65     |         | 45     |         | 45     | 42      | 13      |
| 2780.0 | 71   | 79   | 749       | 65     |         | 45     |         | 45     | 42      | 13      |
| 2790.0 | 73   | 72   | 726       | 63     |         | 43     |         | 43     | 40      | 13      |
| 2800.0 | 74   | 75   | 743       | 65     |         | 44     |         | 44     | 41      | 13      |
| 2806.3 | 74   | 74   | 741       | 64     |         | 44     |         | 44     | 41      | 13      |



|             |          |             |       |           |                |
|-------------|----------|-------------|-------|-----------|----------------|
| BIT NUMBER  | 12       | IADC CODE   | 4     | INTERVAL  | 2806.3- 2824.0 |
| CHRIS C-20  |          | SIZE        | 8.469 | NOZZLES   | 14 14 13       |
| COST        | 16085.00 | TRIP TIME   | 8.0   | BIT RUN   | 17.7           |
| TOTAL HOURS | 6.66     | TOTAL TURNS | 38355 | CONDITION | TO B0 G0.100   |

| DEPTH  | SPM1 | SPM2 | FLOW<br>RATE | DC/<br>OH | DC/<br>CSG | HW/<br>OH | HW/<br>CSG | DP/<br>OH | DP/<br>CSG | DP/<br>RIS |
|--------|------|------|--------------|-----------|------------|-----------|------------|-----------|------------|------------|
| 2810.0 | 55   | 0    | 273          | 264       |            | 44        |            | 44        | 15         | 5          |
| 2820.0 | 51   | 0    | 257          | 249       |            | 41        |            | 41        | 14         | 5          |
| 2824.0 | 51   | 0    | 256          | 248       |            | 41        |            | 41        | 14         | 5          |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 13      | IADC CODE   | 537    | INTERVAL  | 2824.0- 2953.4 |
| HTC J33     |         | SIZE        | 12.250 | NOZZLES   | 16 16 16       |
| COST        | 6637.00 | TRIP TIME   | 8.3    | BIT RUN   | 129.4          |
| TOTAL HOURS | 28.13   | TOTAL TURNS | 90901  | CONDITION | T3 B4 G0.063   |

| DEPTH  | SPM1 | SPM2 | FLOW<br>RATE | DC/<br>OH | DC/<br>CSG | HW/<br>OH | HW/<br>CSG | DP/<br>OH | DP/<br>CSG | DP/<br>RIS |
|--------|------|------|--------------|-----------|------------|-----------|------------|-----------|------------|------------|
| 2830.0 | 78   | 68   | 730          | 63        |            | 44        |            | 44        | 41         | 13         |
| 2840.0 | 77   | 68   | 725          | 63        |            | 43        |            | 43        | 40         | 13         |
| 2850.0 | 108  | 0    | 540          | 47        |            | 32        |            | 32        | 30         | 10         |
| 2860.0 | 105  | 0    | 525          | 46        |            | 31        |            | 31        | 29         | 9          |
| 2870.0 | 72   | 72   | 720          | 63        |            | 43        |            | 43        | 40         | 13         |
| 2880.0 | 71   | 71   | 712          | 62        |            | 43        |            | 43        | 40         | 13         |
| 2890.0 | 71   | 72   | 715          | 62        |            | 43        |            | 43        | 40         | 13         |
| 2900.0 | 72   | 72   | 720          | 63        |            | 43        |            | 43        | 40         | 13         |
| 2910.0 | 72   | 72   | 719          | 62        |            | 43        |            | 43        | 40         | 13         |
| 2920.0 | 74   | 70   | 720          | 63        |            | 43        |            | 43        | 40         | 13         |
| 2930.0 | 73   | 73   | 727          | 63        |            | 43        |            | 43        | 41         | 13         |
| 2940.0 | 72   | 71   | 718          | 62        |            | 43        |            | 43        | 40         | 13         |
| 2950.0 | 73   | 71   | 717          | 62        |            | 43        |            | 43        | 40         | 13         |
| 2953.4 | 73   | 71   | 721          | 63        |            | 43        |            | 43        | 40         | 13         |

|             |         |             |        |           |                |
|-------------|---------|-------------|--------|-----------|----------------|
| BIT NUMBER  | 14      | IADC CODE   | 537    | INTERVAL  | 2953.4- 3085.0 |
| MTC J33     |         | SIZE        | 12.250 | NOZZLES   | 16 16 18       |
| COST        | 6637.00 | TRIP TIME   | 8.5    | BIT RUN   | 131.6          |
| TOTAL HOURS | 34.10   | TOTAL TURNS | 111908 | CONDITION | T3 B4 G0.125   |

| DEPTH  | SPM1 | SPM2 | FLOW<br>RATE | DC/<br>OH | DC/<br>CSG | HW/<br>OH | HW/<br>CSG | DP/<br>OH | DP/<br>CSG | DP/<br>RIS |
|--------|------|------|--------------|-----------|------------|-----------|------------|-----------|------------|------------|
| 2960.0 | 76   | 75   | 757          | 66        |            | 45        |            | 45        | 42         | 14         |
| 2970.0 | 76   | 76   | 762          | 66        |            | 46        |            | 46        | 42         | 14         |
| 2980.0 | 77   | 74   | 751          | 65        |            | 45        |            | 45        | 42         | 14         |
| 2990.0 | 73   | 73   | 731          | 64        |            | 44        |            | 44        | 41         | 13         |
| 3000.0 | 76   | 73   | 746          | 65        |            | 45        |            | 45        | 42         | 13         |
| 3010.0 | 0    | 105  | 526          | 46        |            | 31        |            | 31        | 29         | 9          |
| 3020.0 | 75   | 73   | 743          | 65        |            | 44        |            | 44        | 41         | 13         |
| 3030.0 | 75   | 73   | 738          | 64        |            | 44        |            | 44        | 41         | 13         |
| 3040.0 | 76   | 72   | 743          | 65        |            | 44        |            | 44        | 41         | 13         |
| 3050.0 | 72   | 73   | 728          | 63        |            | 43        |            | 43        | 41         | 13         |
| 3060.0 | 75   | 71   | 733          | 64        |            | 44        |            | 44        | 41         | 13         |
| 3070.0 | 76   | 72   | 741          | 64        |            | 44        |            | 44        | 41         | 13         |
| 3080.0 | 71   | 69   | 698          | 61        |            | 42        |            | 42        | 39         | 13         |
| 3085.0 | 70   | 70   | 700          | 61        |            | 42        |            | 42        | 39         | 13         |

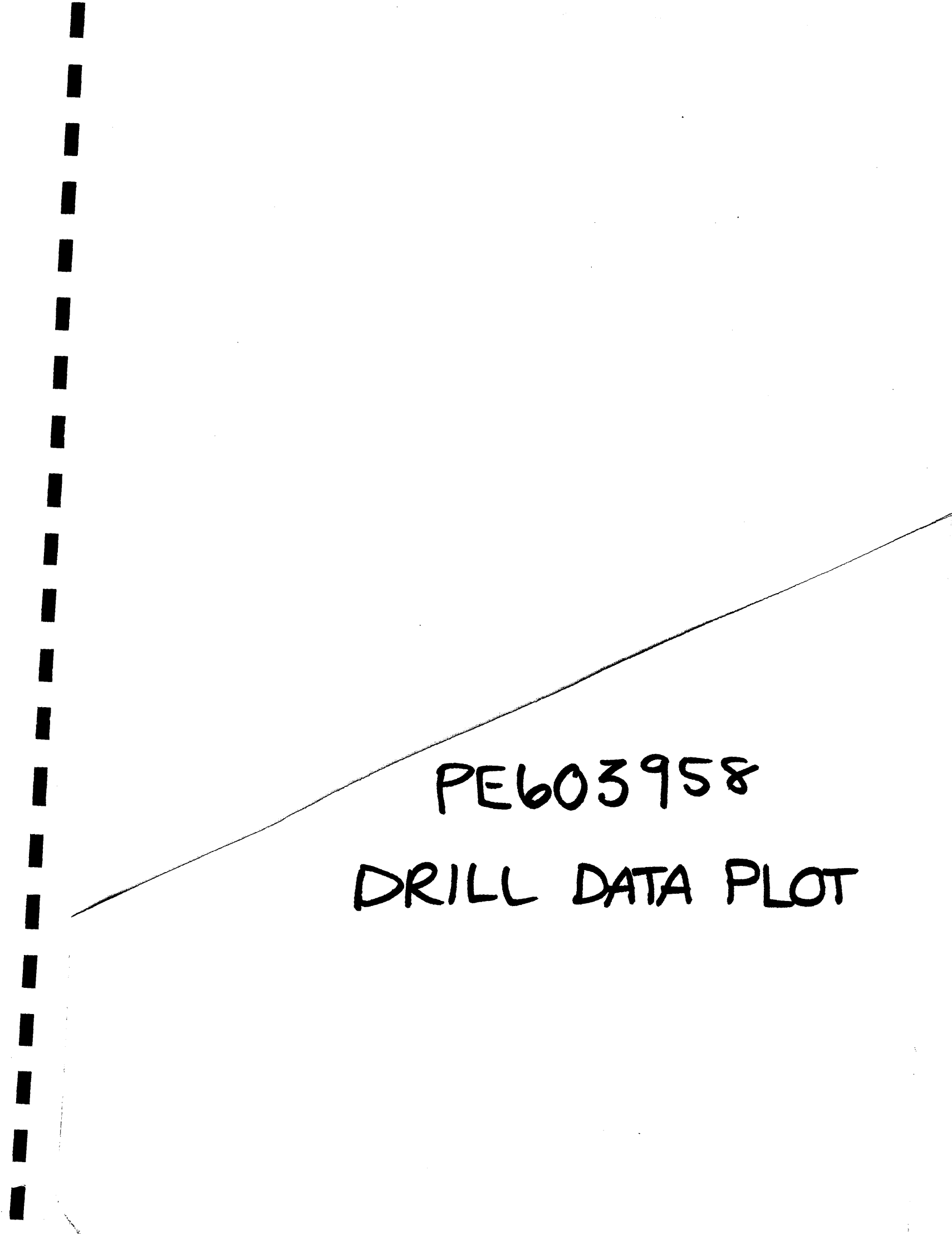
PE603958

This is an enclosure indicator page.  
The enclosure PE603958 is enclosed within the  
container PE905530 at this location in this  
document.

The enclosure PE603958 has the following characteristics:

- ITEM\_BARCODE = PE603958
- CONTAINER\_BARCODE = PE905530
- NAME = Drill Data Plot
- BASIN = GIPPSLAND
- PERMIT = VIC/L2
- TYPE = WELL
- SUBTYPE = WELL\_LOG
- DESCRIPTION = Drill data Plot(from Mudlogging Report)  
for Wirrah-2
- REMARKS =
- DATE\_CREATED = 23/02/83
- DATE\_RECEIVED = 7/06/83
- W\_NO = W797
- WELL\_NAME = WIRRAH-2
- CONTRACTOR = CORE LABORATORIES
- CLIENT\_OP\_CO = ESSO AUSTRALIA LIMITED

(Inserted by DNRE - Vic Govt Mines Dept)



PE603958

DRILL DATA PLOT

PE603959

This is an enclosure indicator page.  
The enclosure PE603959 is enclosed within the  
container PE905530 at this location in this  
document.

The enclosure PE603959 has the following characteristics:

ITEM\_BARCODE = PE603959  
CONTAINER\_BARCODE = PE905530  
NAME = Geoplot  
BASIN = GIPPSLAND  
PERMIT = VIC/L2  
TYPE = WELL  
SUBTYPE = WELL\_LOG  
DESCRIPTION = Geoplot (from Mudlogging  
Report--attachment to WCR) for Wirrah-2  
REMARKS =  
DATE\_CREATED = 23/02/83  
DATE\_RECEIVED = 7/06/83  
W\_NO = W797  
WELL\_NAME = WIRRAH-2  
CONTRACTOR = CORE LABORATORIES  
CLIENT\_OP\_CO = ESSO AUSTRALIA LIMITED

(Inserted by DNRE - Vic Govt Mines Dept)

PE 603959  
GEO PLOT

PE603960

This is an enclosure indicator page.  
The enclosure PE603960 is enclosed within the  
container PE905530 at this location in this  
document.

The enclosure PE603960 has the following characteristics:

ITEM\_BARCODE = PE603960  
CONTAINER\_BARCODE = PE905530  
NAME = Temperature Plot  
BASIN = GIPPSLAND  
PERMIT = VIC/L2  
TYPE = WELL  
SUBTYPE = WELL\_LOG  
DESCRIPTION = Temperature Plot (from Mudlogging  
Report--attachment to WCR) for Wirrah-2  
REMARKS =  
DATE\_CREATED = 23/02/83  
DATE\_RECEIVED = 7/06/83  
W\_NO = W797  
WELL\_NAME = WIRRAH-2  
CONTRACTOR = CORE LABORATORIES  
CLIENT\_OP\_CO = ESSO AUSTRALIA LIMITED


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PE603960  
TEMPERATURE PLOT





PE603962

PRESSURE PLOT

PE603961

This is an enclosure indicator page.  
The enclosure PE603961 is enclosed within the  
container PE905530 at this location in this  
document.

The enclosure PE603961 has the following characteristics:

ITEM\_BARCODE = PE603961  
CONTAINER\_BARCODE = PE905530  
NAME = Mudlog  
BASIN = GIPPSLAND  
PERMIT = VIC/L2  
TYPE = WELL  
SUBTYPE = MUD\_LOG  
DESCRIPTION = Mudlog (from Mudlogging  
Report--attachment to WCR) for Wirrah-2  
REMARKS =  
DATE\_CREATED = 23/02/83  
DATE\_RECEIVED = 7/06/83  
W\_NO = W797  
WELL\_NAME = WIRRAH-2  
CONTRACTOR = CORE LABORATORIES  
CLIENT\_OP\_CO = ESSO AUSTRALIA LIMITED

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PE603961

GRAPHOLOG.